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SKETCH
OF THE
MEDICAL HISTORY
OF THE
BRITISH ARMIES *Donum*
IN THE *Lucohi M. G.*
Ed.
PENINSULA OF SPAIN AND PORTUGAL,
DURING
THE LATE CAMPAIGNS.

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S K E T C H
OF THE
MEDICAL HISTORY
OF THE
BRITISH ARMIES
IN THE
PENINSULA OF SPAIN AND PORTUGAL,
&c. &c.

IT has fallen to my lot to superintend the Medical Department of the Army on the two greatest services on which the military force of this country has of late years been employed; namely, that in Walcheren and that in the Peninsula. Before the memory of the fleeting events shall have been obliterated from my mind, I purpose submitting to this Society some statement of the service on which I was last employed. I shall at present offer a short sketch of the medical history of the memorable campaigns in the Peninsula. Perhaps circumstances may prevent my ever being able to fill it up.

I shall arrange what I have to offer under three heads. In the first I shall give a short sketch of the medical history; in the second, some remarks upon the diseases which prevailed; and in the third, an account of the chief means by which sickness was diminished in the army, and mortality in the hospitals.

I proceeded to the Peninsula, and assumed the medical superintendence of the army from December 1811, and remained till June 1814, when the army was finally broken up at Bourdeaux.

For the sake of order I shall divide the history of the peninsular service into four periods.

The first of these commenced in December 1811, when Lord Wellington opened the campaign with the siege of Ciudad Rodrigo, passed over into Estremadura, and took the strong fortress of Badajos by assault. Having thus laid open the passage into Spain by seizing on its two strongest bulwarks on the Portuguese frontier, the campaign closed, the army going into cantonments at the end of April.

The second campaign began by the army advancing into Spain in June 1812, and fighting the memorable battle of Salamanca which opened to us the road to the capital, cleared Cadiz and the whole south of Spain of the enemy, and, perhaps,

ultimately led to the liberation of Europe. Circumstances finally occasioned our retreat from Spain and wintering in Portugal, whither we moved in November 1812.

During this period, the army remained in cantonments refitting and recruiting till May 1813, when it took the field again, advanced into Spain, and, after a series of actions and a service of the most brilliant achievements, fought the great battles of Vittoria and Pampeluna, stormed the fortress of St. Sebastian, and planted the British standard in France, where we remained in quarters during the ensuing winter.

In the fourth period, the army in February 1814 advanced into France and we continued advancing and fighting till May 1814, when accounts of the peace reached us, and hostilities were terminated.

To commence with the first period: the campaign opened in the north of Portugal, during a very inclement season and with very little shelter or cover. The harassing duties and severe weather, which we experienced, were causes of sickness to the divisions of the army employed at the siege of Ciudad Rodrigo. Snow fell occasionally, and in December, January, and February, the ground was usually covered with hoar-frost. The sick and wounded, French and Portuguese as well as British, were

moved to Castanheira, Celorico, and ultimately to Coimbra, a distance of more than forty leagues from Ciudad Rodrigo. The number of wounded was very considerable ; a great many of them arrived with the extremities frost-bitten ; and Tetanus was not unfrequent. At this period, contagious Typhus was prevalent in the hospitals at Castanheira, Celorico, and Coimbra.

In February, almost the whole army was rapidly moved to the southern frontier of Portugal, and joined Lord Hill's corps which had been for some time employed in watching Marshal Soult's movements in this quarter. The siege of Badajos immediately commenced : it rained heavily during the whole of the siege, which, with the severity of the duties, and some intemperance, induced a good deal of disease. The number of the wounded in the hospitals exceeded five thousand.

When the attack on Badajos and the march to Estremadura were determined upon, Dr. Dickson the Purveyor General formed a line of hospitals from Badajos to Lisbon, viz. at Elvas, Estremoz, Alto de Chaô, Abrantes and Santarem ; and after the fall of Badajos, all of them were speedily filled with sick and wounded.

It appears by the returns transmitted to me from the divisions of the army during this period, that

the diseases prevailing were continued fever, (which at the first part of the season called for the free use of the lancet,) Pneumonia, Catarrh, Vernal Intermittents, Cynanche, and Rheumatism. Locked Jaw was likewise not unfrequent among the wounded.

2nd Period. From June, when we took the field, till November, when we retreated from Madrid and Burgos, the army was most actively employed; we traversed a great part of Spain; the soldiers exposed to a burning sun in the day, and generally sleeping in the open air at night. From June till September, the degree of heat was considerable; in August, it was seldom under 90 degrees of Fahrenheit's thermometer; the rains commenced in September, continued very heavy in October, and the greatest part of November, when the severely cold weather mentioned as prevailing in Portugal in December last year, was every where felt by the army on their entering the barren mountainous frontier of Portugal.

In the beginning of the campaign, and in our progress when advancing, we established hospitals at Salamanca, Segovia, Medina, Madrid, Valladolid, and Burgos; and for Lord Hill's corps, in a line from Madrid to Badajos, by Toledo, Truxillo, and Talavera. When the army commenced its retreat in October, all these hospitals were broken

up, and the sick thrown on Ciudad Rodrigo, Celorico, Coimbra, and also Viseu, which was now formed into an hospital station.

From the long line of communication, and the great distance from which sick came under circumstances the most unfavorable, many of them in the advanced stages of disease, a heavy mortality occurred in these hospitals, particularly in the month of November.

The diseases of this period were chiefly remittent and continued fever. Under the many unfortunate circumstances which occurred in November, this assumed the typhoid shape. In the parts of Spain and Portugal where remittent and intermittent fevers are endemic, the sickly season is from July to September. After the rains had set in, in September, dysentery, the scourge of armies, appeared in our hospitals; and other diseases were observed to have a great tendency to terminate in this the most fatal of all. In October, phagedenic ulcer or hospital gangrene, as it is termed, spread widely among the wounded. Tetanus was prevalent in August, after the battle of Salamanca, and some cases of it appeared at the siege of Burgos. It was very remarkable, how unkindly and severely the rainy weather in October operated on many debilitated cases whose constitutions had been worn out by repeated attacks of fever, joined with bowel

complaints ; many of these were suddenly carried off ; several in the course of a few hours.

3d Period. When we reached the Agueda and Coa, the army took up positions behind these rivers, and the enemy did not seem inclined to follow us further ; it was therefore put into cantonments, and the widely scattered sick collected into hospitals. Many suffered from the extreme severity of the weather, by the transport over bad roads, in bullock cars, or on the backs of mules ; but more from their own irregularities. The reports of the enormities and excesses committed by them were dreadful : and numbers of stragglers were discovered dead in different parts. As soon as the army halted, Lord Wellington issued the strictest orders, and every thing was done to re-clothe the men ; to provide them with blankets, to procure an abundance of good provisions, and to restore order and discipline. Various instructions were at the same time issued by me through the medical department, touching the health of the soldiers ; and contagion being so much to be dreaded under existing circumstances, the most energetic means were taken to prevent its appearance, and to stop the progress of it, when it did appear.

In its cantonments the army was widely spread in villages over a great extent of country. As these villages were mostly dilapidated, or in a ruin-

ous state, the soldiers every where set about repairing them, building fire-places, and rendering the habitations comfortable. The medical officers of each regiment were directed not only to see that the utmost cleanliness and ventilation were preserved in the quarters of their own corps, but to have an eye to the health of the inhabitants, and to report if the magistrates did not pay a proper attention to the police. But above all things, care was taken, that the large body of sick which now oppressed the army, should not be crowded into the general hospitals, where there was already much contagious disease.

With this view, every regiment fitted up an hospital for itself, where not only all the sick that occurred were treated by their own medical-officers; but the chronic cases were sent from the general hospitals to the regimental, and strict orders were given, that no sick should be sent to the general hospital. The consequence of this measure was, that though contagious typhus and hospital gangrene were in November as prevalent in every corps as they had been in the retreat to Corunna in 1809; these destructive diseases soon disappeared in every regiment, the guards and a few others excepted; and in four months' time, the army was effective and in perfect condition to take the field again.

So completely had the guards been rendered

ineffective by the fever which in November prevailed in the army, that three months after, Mr. Nixon informed me, he had not to that time seen any individual fairly recovered from it. The brigade of guards suffered so much, even to so late a period as the end of February, that at my recommendation, they were sent to Oporto; and did not subsequently join the army till after the battle of Vittoria, in June.

The 6th was the most unhealthy division of the army, it contained the 82d and 91st regiments newly arrived from England.

In the bleak cantonments of the 6th and 7th divisions of the army under the ridge of the Sierra de Estrella, almost always covered with snow and exposed to sharp winds, the inflammatory diathesis was prevalent, and was strongly marked in all those who were attacked with disease.

In the more sheltered quarters of the 3d, 4th and 5th divisions of the army, cantoned in the line of the Douro, or in the valley of the Mondego, disease appeared with milder features, and phlegmasia was less frequent. After the 4th division had got settled in their quarters, Mr. Boutflower reports, that not a single instance of typhus occurred. Indeed in every corps of the army, the guards, 11th dragoons, 5th, 45th, 38th, 82d, 87th and 91st regiments excepted, the fever which appeared a month

after they came into cantonments was universally synochus.

The weather was very severe during the end of November, the whole of December, January and part of February. In January, even at Lisbon, the thermometer stood at 42° in the shade; and in these months the admissions into the hospitals were cases of pneumonia, with low fever, continued fever, catarrh, and rheumatism of the feet. In February, the thermometer at Santarem stood at 45° , and the wind was often at north east. In April, the weather was warm after some rain, the beginning of May was very cold, but after this it rained a good deal; then the thermometer rose very high, and about the end of May the number of intermittents considerably exceeded that of any other disease. We approached the mountainous frontier of France in this month, and had a good deal of rain.

In August, so healthy had the army become after a little rest in this month, and so mild and trifling were the diseases of the soldiers which now made their appearance, that it was found difficult to reduce them to distinct heads. Such an exemption from disease, in one of the most unhealthy months in the year in Spain, we attributed solely to the healthful bracing air of the mountainous encampments, at a distance from villages. Much must likewise be attributed to the moderate and wholesome portion of labour, which the troops now

had in fortifying the passes ; to the abundance, and good quality of the provisions ; very much to the soldiers being excluded from the temptations to drunkenness and disorder, which too irresistibly offer themselves to them when quartered in towns and villages : and somewhat I think is to be attributed to the exhilarating view, which from the lofty Pyrenees we had of the plains of France, and the hopes which all entertained of fighting on the very ground on which the Black Prince led a victorious English army so many years before. Different indeed was the termination of this campaign from that of the former.

In the first part of this period, there was much severe disease, and great mortality on the line of the general hospitals to which the sick had been sent during the retreat, viz. Ciudad Rodrigo, Celorico, Coimbra, and Viseu.

When the army was preparing to advance, we constructed buildings, and fitted up part of a neighbouring village as an hospital, in a healthy situation near Castel Rodriguez, and contiguous to the Douro ; by which sick could be conveyed from it to Oporto, where we likewise formed a large hospital establishment. It was intended, as we advanced, to have sent back all the sick and wounded as they occurred to this hospital, near Castel Rodriguez : fortunately however, the advance of the

army was so rapid, as to admit of this being done but in a small degree.

We established hospitals in succession at Miranda de Douro, Zamora, Toro, Placentia, Salamanca, Valladolid, Vittoria, Vera, and along the north coast of Spain at Corunna, St. Andero, Bilboa, Passages, and St. Jean de Luz.

In the early part of this period, pulmonic affection supervened on intermittents; and in many instances, pulmonic affections were combined with agues and fluxes. The prevailing disease finally assumed the form of low fever.

The dysenteries which had been conveyed a long way to the general hospital in November, arrived in the most unfavorable state, and little was left for the practitioner to do. Every case presented a complication of disease, disorganization of the irrecoverable viscera, and, in most cases, an irrecoverable loss of tone in all the vital powers.

In November, the febrile disease had been verging from the autumnal remittent to the winter continued type, It was not till February had nearly closed, that the malignity of the fever which had prevailed in general hospital stations began to abate.

Hospital gangrene was very prevalent in some of the regimental as well as in the general hospitals,

after the retreat. After the battles of Vittoria and Pampeluna, it spread widely ; and committed great havock in the hospitals at Vittoria, Bilboa, St. Andero, and Passages.

Tetanus was more prevalent after the battles of Vittoria and Pampeluna, than had hitherto been seen in the Peninsula.

As the campaign consisted of a series of actions, besides the great battles of Vittoria and Pampeluna, and the siege of St. Sebastian, our number of wounded was very considerable. Vittoria, Bilboa, and St. Andero were much crowded, not only with the British, but with the French, Portuguese, and Spanish wounded.

The fever which prevailed during the campaign was the continued and remittent, which prevailed during the campaign of last year, but it was this year of much milder features.

4th or last period. The healthy state in which the army came into winter quarters in the beginning of November, continued with most of them, throughout the winter, although there existed not a few unfavorable circumstances. Never perhaps did an army undergo more fatigue than this did during the last campaign. When not engaged with the enemy, they were performing long and harrassing marches

during the day, and usually slept in the open air at night.

At the beginning of this period, the army was posted on the ridge of the Pyrenees, the southern, the enemy being posted upon the opposite, and they did not permit us to remain in quiet quarters during the winter. Some of the men were in tents, some in huts slightly constructed, and others under sheds, or in the dilapidated villages which the enemy had destroyed.

The weather in November, December, and January was severe ; part of the mountains being deeply covered with snow ; and whether it rained or snowed, the situation of the soldier was extremely unpleasant ; even the Scotch Highlander felt severely the rigour of this Alpine situation.

The diseases which prevailed were synocha, pneumonia, catarrh, and rheumatism. But few men were lost, the diseases being attacked in the early stage, in the regimental hospitals, which were established in the neighbouring villages, and very few men being sent to the rear. What I have never before seen, occurred at this time ; the cavalry was the only sickly part of the army. Though there was most disease in the household brigade, 10th and 15th hussars, who all of them arrived last season from England ; yet no regiment of cavalry was very healthy at this time. In order that they

might have forage, the cavalry was cantoned in the richest part of Navarre, on the banks of the Ebro, where the quarters were good, there being many large villages and towns which however provided liberally the causes of disease to the soldier. At first, there prevailed synochus, diarrhœa, cholera, and catarrh; latterly, typhus, pneumonia typhoidæa, and dysentery. There was a good deal of intermittent fever in every part of the army, excited most probably by the cold in those who had agues in the former season.

The few sick who were sent to the rear from the divisions of the army, were sent to Passages; whither likewise, the wounded at St. Sebastian's were sent in the first instance. From Passages, the sick and wounded were sent occasionally by sea to Bilbao and St. Andero. As transports are but ill accommodated for the conveyance of wounded men, or those labouring under dysentery or fever, and as the season was very unfavourable on the north and east coast of Spain, they often suffered a good deal on the passage; hospital gangrene spread; cases embarked as synochus, landed as typhus, and some assumed the appearance of typhus icterodes. The few cases of this last disease, which appeared at St. Andero, by no means justified the alarm which the Spanish government took, in subjugating our hospitals to the rigours and inconveniences of the quarantine laws.

After synochus, the disease next in frequency, throughout the army, was dysentery ; but when it was attended to in the very first attack, in the regimental hospitals, and when in its pure unmixed form, the lancet was freely used, there was very little mortality from it.

Though in quarters, we came frequently in contact with the enemy, and had a considerable number of wounded, particularly in January, when the 1st and 5th divisions gradually advanced upon the enemy, till we came close on Bayonne.

Early in December, by Marshal Soult's attempt to force the 2d division of the army, we had 1100 men of that division, a good many prisoners, and a considerable number of Portuguese wounded ; and an hospital was established for them by Dr. Tice, in the miserable village of Cambo where the action was fought. Immediately after this, we successively forced the enemy across the Nivelle, the Nieve, and about the end of February, the large river Adour ; when the campaign might be said to have fairly opened, the combined army entering France. About this time, the division of the army which had served in Catalonia joined us. Mr. Brown, who superintended the medical department, reported to me, that that part which had come from Sicily to Alicant, was very healthy, the proportion of sick to those in health being as 1 to

25. One of the Italian regiments brought with them 75 cases of ophthalmia, which disease, Mr. Brown states, he found to be epidemic on the east coast of Spain.

Sir James Fellowes made me the same favourable report of the state of the small division of the army which was left at Cadiz. Part of this division had joined us in the second campaign, and part had been sent to Carthageua, where general Ross commanded. Dr. Wright, General Ross, and many officers and men were lost by the same contagious fever which had made such havock at Gibraltar, Cadiz, and most places on the coast of Spain.

The 1st and 5th divisions under Lord Nidry being left to blockade Bayonne, the Duke of Wellington proceeded with the other seven divisions, into France. After fighting the battle of Orthes, we met with no resistance to our progress, till we came to Toulouse, the capture of which became the fruit of the victory gained under its walls. The accounts of peace which we heard in April arrested our further victorious progress. The climate and season of the last campaign were favourable, and we suffered very little from disease, our hospitals containing few besides the wounded.

PART II.

Of the Diseases which prevailed.

On reference to the returns of the sick and wounded, I find, that from the 21st of December, 1811, to the 24th of June, 1814, 346,108 cases of disease or wounds were treated in our hospitals. There appeared to have been discharged cured from the hospitals, during this period, 232,553. There were invalided, as no longer fit for active service in the field, or sent to England for the recovery of their health, 4,586; and there died of their wounds or of disease 18,513. This mortality, enormous as the number may appear at first sight, will not be thought great upon due consideration, and an explanation of attendant circumstances. The above number includes the death of every wounded man, who had been received into the first hospital establishments, or had been seen by a surgeon, and it consequently includes many hundreds who did not live one hour after they were seen. This is a description of cases which has not usually been brought forward in any returns, military or medical; it being the custom in almost all armies, to include under the head killed, all those who die within a few hours after an action.

If the circumstances under which we acted be duly weighed, the mortality from disease in the

Peninsular army will appear very small. I have reason to believe, that the practice in our general hospitals was on the whole at least as successful, as it hitherto has been in any military hospitals. The first part of this paper will shew some of the disadvantages under which the practitioner in the general hospital received the greater part of his patients. They consisted of dysentery, usually complicated with disorganization of the viscera, and this, as well as fever, pneumonia, hospital gangrene, and other diseases, were mostly received in their advanced stages. I believe that the British army never possessed so great a proportion of high professional talent, and never more ardent zeal in the discharge of duty, than were displayed by the physicians and surgeons in the general hospitals in the Peninsula.

I mean to offer some remarks on the diseases which were most prevalent, and I commence with fever, which was the disease of by far the most frequent occurrence. This is a subject on which very much has been written, and on which there has been great discordance of opinion from the very earliest ages. Fever was with us of many and various types; not only different in the different seasons, and in the different quarters of the Peninsula which we traversed, but it had an infinite number of shades even in the same place, and even when it attacked subjects who appeared to have been similarly circumstanced. In the returns of sick

transmitted to me, I have not unfrequently observed some cases stated as remittents, when probably, the only reason for denominating them so, was the strongly marked exacerbation of continued fever; while another practitioner with the same cases would have denominated them differently. I found that many felt a difficulty in drawing an accurate line of distinction, which it must be confessed is not a little arbitrary; particularly when the forms of disease so frequently passed into each other as they did in the Peninsula.

Not only had fevers very different forms in different seasons, and in different quarters of the same season; but they required very different, nay opposite kinds of practice; the knowledge of this strongly impresses on us the necessity of becoming acquainted with every attending circumstance, before we venture to censure any particular practice.

A case occurred to Dr. Emerson at Celorico, in January, 1812, which had commenced as continued fever, became remittent, then intermittent, and then again continued fever, from which the patient ultimately recovered.

The following is the order of frequency in which fever occurred: 1st, continued, usually the synochus of Cullen; 2ndly, intermittent; 3dly, remittent; 4thly, typhus. The latter is a type of fever which has become of much less frequent occur-

rence in the army than it was ; it is even a more rare disease now than is generally supposed I have very often seen the disease erroneously denominated typhus, when it has been merely marked by the debility succeeding the stage of re-action, in either synocha or synochus ; and this is of more importance than as regards a mere nosological distinction ; for it leads to a material difference in practice.

I shall begin by adverting to fever, as it appeared from November, 1812, to the autumn of the following campaign. It was every where at first synochus or remittent fever, but in the course of a little time, in most corps it assumed the typhoid appearance, and in a few, proved a most formidable and fatal disease. Several of our regiments had been in the army of Sir John Moore, and the surgeons reported to me, that the appearances which the cases of fever assumed with us in the months of November and December, were precisely the same as those which they had seen in the retreat to Corunna, and I well remembered the same appearances when that army landed in England. When I visited the hospitals in January, the great similarity of the disease which I then saw, to that which I had seen at Portsmouth in 1809, struck me forcibly ; the greater part of the sick of that gallant but ill-fated army, having been brought to hospitals in the vicinity of Portsmouth, under my superintendence.

By the time the sick sent to the rear in October, November, and December, reached the general hospitals at Ciudad Rodrigo, Celorico, Viseu, or Coimbra ; the cases appeared in the most malignant form which typhus has ever assumed.

The disease appeared in different shades, in the different divisions of the army, but with most malignity in the 1st division, in which the guards were ; and in the mildest form, in the light division of the army.

The causes are apparent in the history of this period, namely, the 3d. In the Medical History of armies as well as fleets, it will, I believe, be invariably found, that troops coming into cantonments after an active campaign, even under favorable circumstances, have very rarely, if ever, been found healthy. It is not improbable, that the powerful stimuli, mental and corporeal, which have been applied during an active campaign in the field, induces such a degree of exhaustion as either to predispose to disease, or diminish the resistance to morbid actions. These causes would act with redoubled force, when the troops arrived under debility of body and depression of mind ; exposed to great fatigue, watching, want of food, cold and wet, with the depression which always accompanies a retrograde movement. Almost every corps suffered from want of clothing, blankets, watch-coats, shoes, and stockings. In this com-

fortless state, and in the midst of a severe winter, the divisions of the army arrived in the miserable ruined villages assigned to them as cantonments. The remains of the inhabitants of these villages, who were extremely poor, suffered much themselves from want of food and from cold ; they were in general sickly, low fever prevailing among them. In the 6th and in the 7th divisions the men were unfortunately at first very much crowded in their cantonments ; but this was soon remedied ; and in these, as well as in all the other divisions of the army, the orders of Lord Wellington were promptly obeyed, the cantonments were soon rendered comfortable, the soldiers got clothing and blankets, and above all, they were regularly supplied with abundance of wholesome provisions by the commissariat.

Throughout the divisions of the army it was observed, that those regiments, which suffered most, were those who had served in Walcheren ; next, those who had come lately to the Peninsula. In the regiments which had served some time in the Peninsula, the first subjects of attack were recruits, or those who had last joined ; next, the convalescents from the general hospitals, and who had frequently marched a considerable distance to join their regiments.

As I have already said, the divisions which suf-

ferred most were the first and sixth ; in the first, the disease was confined almost entirely to the guards ; the German regiments of that division being among the most healthy corps of the army, as I have uniformly seen them on every service, particularly in Walcheren. Of seven regiments, which composed the sixth division, six had been in Walcheren. The most unhealthy regiment in this division, and the one which, next to the guards, suffered the greatest mortality in the army, was the 91st Highlanders. This regiment had been in Walcheren, where I observed it to suffer more than almost any other of the sickly corps on that service ; but it was the latest arrived in the Peninsula. It had hardly recovered from the effects of this fever, and become effective, when we left the Peninsula. On my inspecting the hospitals in January 1814, before we marched into France, I observed the men still retain a sallow and unhealthy look ; and their sick list was greater than that of any other in the army. I find that, from the 7th of October 1812, when this regiment joined the army, to the 24th May 1814, they lost not fewer than 220 men, and had 56 invalided ; and this from a strength of 952 men on their landing with 121 recruits received in that time, a total of 1073.

When the army halted in quarters, it was remarked as a peculiarity in the prevailing fever, that there was extreme pain in the lower extremities, without swelling or redness, and this often remain-

ed after the febrile action had ceased. The disease was in many cases slight, and of no long duration ; but relapse was extremely frequent, till the clothing of the men was mended, and till the carpenters and artificers had repaired the buildings assigned to us as quarters and hospitals. Lumbrici were frequently voided by the mouth at this time.

Staff-surgeon Cole states, that in the 6th division, the attack of the disease was sudden and unexpected, without much preceding lassitude or indisposition: Violent headach, immediate loss of power of the lower extremities, attended with violent pains of the muscles and joints, without redness or tumefaction, bilious vomiting and occasional purging, a peculiar wan visage or sallow aspect, or with glassiness of the eyes ; these were the appearances which marked the first attack. The pulse then became quick, weak, and often intermitting, the temperature of the body was seldom above the natural standard, and the tongue was always very foul. On a remission of the febrile symptoms, or approach to convalescence, the patient experienced excruciating pains of the lower limbs, especially at night, which greatly retarded recovery. In many instances, deafness, vacancy of aspect and stupidity continued long after the removal of the febrile affection. When death occurred, the patient sunk very rapidly, and was usually carried off by a diarrhœa which resisted every remedy. Mr. Scott, assistant surgeon of the 11th

regiment, states, that in two of his cases, he saw light coloured petechiæ, and in two more, a remarkable frightful appearance of the face, with tumefaction and lividity of the nose and upper lip,

But it was in the brigade of guards, that this disease appeared in its severest form : and of them, the regiment which suffered by far the most, was the 1st battalion of the 1st regiment. Along with the 91st regiment it landed at Corunna in September 1812, and from that time to the 24th May 1814, it suffered the enormous loss of 674 men dead in hospital, besides 280 who were invalided, from a strength of 1400 men on landing, and an addition of 565 recruits received thereafter, making a total of 1965 men ; it suffered the greater part of this loss immediately after the retreat, and became very healthy long before it embarked for England. Mr. Bacot, the surgeon of this battalion, informed me, that on landing at Corunna, he only left 63 men there who were unable to march, and the battalion joined the army on the retreat at Duenos with only 58 sick of all descriptions, though they had made long marches in severe weather over the mountains of Gallicia. When I saw this battalion at Duenos, in appearance they were by far the finest and most complete in the army, exciting the admiration of every officer who saw them ; never surely was the appearance of men more altered than was that of this unfortunate battalion when I visited their hospitals near

Viseu in January. Mr. Nixon, the deputy inspector of hospitals of the guards, informed me, that by the time they reached Salamanca much diarrhœa and fever appeared in this, as well as in the other battalions of the guards. The sickness continued greatly to increase from the time they left Salamanca, perhaps about the 20th October, till their arrival near Celorico on the 4th December. They sent in this period to the different general hospital stations some thing more than - - 300
 Of these died in general hospitals - - - 140
 There remained in these general hospitals - 60
 There joined the 3rd battalion from general hospitals - - - - - 100
 but of this number, almost all relapsed and there died - - - - - 40
 in their own regimental hospitals. This is indeed a sorry account of 300 men, and is only equalled by one instance that came under my own observation in the West-Indies. It was that of the 56th regiment which had sailed from Cork for St. Domingo; but after having been a long time at sea, the transports put into Barbadoes in 1796, typhus icterodes prevailing with more malignancy, and been attended with greater mortality, than I have ever seen.

Mr. Bacot states, that in the latter part of the retreat, cases of affection of the chest were very prevalent. When the battalion halted, the cases which he admitted into hospitals were those of complete exhaustion; without any prominent

somptom of disease, without local pain, heat or fever, or derangement of the bowels; the men simply complained of want of power to move their limbs; they died without being roused in the least by any stimulent; though they were largely, but cautiously and gradually exhibited. Great part of them proved fatal. Dissection made no approach to a discovery of the causes of the disease.

Mr. Nixon, in speaking of the sick of the three regiments of the guards, on the first invasion of this disease, says, that in almost every instance, the skin was below the natural temperature, and continued so during the whole progress of the disease. The head, though at first affected with pain and giddiness, did not in general become very much confused; nor was the delirium which was met with in some of the cases, either of long duration, or of considerable extent; on the contrary, the intellect was perfectly clear to the last period of life. The deep yellow tinge of the skin was a very common occurrence in the 1st regiment, not so frequent in the Coldstream, and very rare in the 3d regiment of guards. All this description of patients died, with one exception. The vomiting of large worms was very general; several of those who died with yellowness, were opened; but no disease discovered either of the liver, gall-bladder, or ducts. Few of the serjeants, orderlies or nurses attending on the sick, escaped an attack of the disease. It appeared to me, that the prominent feature in the

disease was the very low temperature of the skin, and the total want of every thing like reaction. There was in general so much affection of the alimentary canal, as to forbid the use of the cold affusion, or the treatment by purgatives, as recommended by Dr. Hamilton; indeed it was reported to me that, in some cases where this last treatment was tried, it did harm.

In January 1812, fever made great havock in all the general hospitals. At Ciudad Rodrigo, Dr. Neale informed me that the cases of typhus had almost universally mortification of the lower extremity, with livor, and mortification of the nose. This contagious fever soon seized on all the ward-masters, nurses, and orderlies, and, Dr. Neale himself excepted, upon every one of the medical officers attending the hospital. If my recollection serves me, not less than eleven British medical officers died there. Rheumatic, catarrhal, and even peripneumonic symptoms ushered in the commencement of the fever, at Ciudad Rodrigo. Dr. Neale sometimes resolved the fever by sudorifics; but the convalescence frequently terminated in incurable diarrhœa. He sometimes successfully gave the Peruvian bark largely, sometimes combined with camphor, aromatics and opium; and assisted them by the warm bath, blisters, and sinapisms. He informed me, that the mortality among the inhabitants had been enormous: in 12 months, 1200 out of a population of 6000, died of misery and fever.

Drs. Emerson and Bone give a similar account of the hospitals at Colorico, the next place to which the sick were sent in Portugal; and the statements of Drs. Tice, Moseley, and Erly, of the appearance of such cases as reached Coimbra, are to the same effect.

But it was at Viseu, that most of the disease was seen. The fever in the hospitals at Viseu was evidently rendered virulent by the admission of the sick of the guards, and attended, as Dr. C. Forbes says, with a mortality which he had seldom seen equalled in the West-Indies, in its most sickly times.

In the beginning of February, the brigade of guards emptied the whole of their hospitals, and sent every case to the general hospital at Viseu. At this time the fever was peculiarly characterised by a strong tendency to dissolution of the body, exemplified in extreme debility, the very frequent occurrence of deadly cold in the extremities, and, in many instances, of all parts of the body, excepting those nearest the sources of the circulation. Petechiæ and vibices were almost constant symptoms, as likewise gangrene of the feet; in some instances, of the hands, and in some, of the feet, hands, nose, and ears.

The invasion of this most formidable fever, was very characteristic of its type. In as far as I could

learn, during my visit to Viseu, and from the correspondence of Drs. C. Forbes and L'Affan and Mr. Nixon, it made its advances by very slow degrees, the person affected for some days complaining of great diminution of vigour, both of body and mind, without being able to explain precisely what ailed him. Many continued several days in this state, generally with very great depression of spirits. Mr. Nixon told me, that, frequently, a soldier of the most athletic make, and with no appearance of disease, expressed himself as ready to cry without knowing the reason. After remaining a few days in this state, prostration of strength would very rapidly come on; and in several instances to such a degree, that they fell down, and every attempt to restore action has failed. Reaction in this fever seldom took place.

It was remarked, that a majority of cases were unattended with delirium, even to a very short period before death. Towards evening, sometimes when the agency of external stimuli was withdrawn or nearly so, and had little influence on the senses, some tendency to delirium has taken place; but for the most part, this went off in the morning.

Yellowness of the skin was not an unfrequent symptom, and it was observed, that patients so affected seldom recovered. Dr. Forbes could only recollect two recoveries in this state, of all the pa-

tients sent to Viseu. In one case that died jaundiced, and when the body was opened, the gall-bladder was distended with bile; but there was none in the duodenum, which was distended with air. The yellowness of the skin appears in this case, therefore, to have arisen from absorption of bile in the constitution, perhaps owing to an obstruction in the common duct spasmodically affected.

In a milder variety of this fever, and as it appeared latterly, there was remarked invariably an affection of the head, with a dull head-ache, excessive torpor of the bowels, much general irritability, combining stupor with watchfulness, and great mental depression. In these cases the head was shaved, and leeches were applied to the temples; sometimes the temporal artery was opened, and the whole scalp was covered with a blister; but when the symptoms were milder, the blister was applied to the nape of the neck. At the same time a brisk cathartic was exhibited and repeated if it did not speedily act.

Besides these remedies, the body was sponged with vinegar more or less according to the degree of animal heat existing, and to this, and the increase of temperature, the special attention of the nurses and orderlies was particularly called in all cases. The saline mixture, with a proportion of tartarized

antimony, given in repeated doses, was serviceable in many cases. Wine was given according to symptoms, but never in large quantities.

I find that in the regimental hospitals, the state of admission of cases of continued fever is as follows :

In 1812	-	-	-	-	16,923
1813	-	-	-	-	18,294
1814 to the 24th of June,					15,007

The total deaths in all the hospitals, general as well as regimental, of continued fever, was in

1812	-	-	-	-	2,020
1813	-	-	-	-	1,598
1814 to the 24th of June,				-	387

Of typhus, we admitted in the regimental hospitals in 1812

-	-	-	331
1813	-	-	1,309
1814 to the 24th of June,			155

In 1812, there died in all the hospitals, general as well as regimental

-	-	-	999
1813	-	-	971
1814 to the 24th of June,			307

Remittent Fever.

Of this disease, there appeared in the regimental hospitals in 1812	-	-	1,826
1813	-	-	1,699
1814 to the 24th of June,			436

There died in all the hospitals, general and regimental, in 1812	-	-	67
1813	-	-	65
1814 to the 24th of June,			18

I have nothing to offer either on the appearance of remittent fever, or on its treatment. The cold affusion was reported to have been frequently useful on the accession of paroxysms, in the beginning of the disease. In the early stage of pure unmixed remittent, the use of the lancet was indispensable; and when the disease was of long standing, the aid of mercury was called in.

Intermittent Fever.

Of this disease, I find, that we admitted altogether 22,914 cases in the regimental hospitals, and as follows :

In 1812	-	-	-	13,759
1813	-	-	-	8,203
1814 to the 24th of June,				952

A retrospect of the first part of this paper will explain, why so much of this disease fell on 1812. Almost the whole of the army passed over this year into the Alentejo, and Estremadura, the soil of which is at all times so fertile of this disease; indeed, there are not many parts of Portugal where it is not endemic. It is particularly so about Elvas, Badajos, along the sluggish banks of the Guadiana, in the line of our hospitals, at Alta de Chao, and on the banks of the Tagus, at Abrantes, and Santarem. So common is ague in many parts of Spain and Portugal, that the inhabitants do not term it a disease; infants at the breast are frequently seen with ~~in~~ *it*

In 1812 there died of intermittent fever in

all our hospitals	-	-	-	148
1813	-	-	-	139
1814 to the 24th of June,	-	-	-	4
				<hr/>
Total	-	-	-	291

The fatal cases from this disease were almost every one of them of long standing, and complicated with other disease, and, as we learn by dissection, most frequently of the spleen and of the liver. The only two of which I can find dissection-reports were both at Coimbra. One of them was a patient of Dr. Erly's, who informed me, that he lost him in a paroxysm which commenced with extreme severity producing com;

apoplectic stertor, a dry parched brown and furred tongue, which extinguished life in 24 hours after its invasion. This was at Coimbra in October 1812. Another case occurred at the same place to Dr. Tice; this man died in the cold fit; he had been previously in a state of convalescence, but sufficient energy did not remain in the system to produce reaction, which might probably have saved the patient.

At Santarem, much intermittent fever was admitted into the hospitals in 1812: and not a few cases originated in the hospitals or the neighbouring country. Dr. Buchan informed me that they began as continued fevers, and in eight days became tertians; and the contrary not unfrequently occurred, a tertian changing to a quotidian, and that degenerating to a continued fever frequently of a typhoid form. The symptoms in the paroxysm were great determination to the head, coma, spasms of the stomach and extremities; and some had dysenteric affection.

In August 1812, at Coimbra, Dr. Tice in several cases observed an erythematous papular eruption over the whole body.

I shall mention one among the numberless instances which occurred, of the varying nature of this disease: it happened at Alta de Chaô. In the month of November 1812, there were 70

cases of intermittent fever in one of the hospitals, seven of them changed from other diseases to intermittent, and 20 changed to other diseases. most of them to dysentery; six terminated in continued fever, the symptoms of which subsided in a few days, leaving the patients perfectly well. At Alta de Chaô, the quotidian was the prevalent type in all the recent cases. In October 1812, they were in the proportion of 16 to 1 of any other type.

After the effluvia from marshes or the exhalations raised by a powerful sun acting on a humid or luxuriant soil, we found that in those who were convalescent or lately recovered from agues, the causes next in power to re-produce the disease, were exposure to a shower of rain, or wetting the feet, exposure to the direct solar rays, or to cold, with intemperance and irregularity, or great fatigue. Many other causes would excite the disease in the predisposed; but these never failed to do it. In marching troops in a country where this disease is endemic, particularly if they have been lately discharged from hospitals, the above causes should by all means be avoided, since the whole of our experience in the Peninsula showed, that relapsed cases seldom or never got completely well, in the country in which they were contracted, under all the circumstances of a soldier's life, In making calculations of efficient

force, this description of men could not be depended on for operations long continued in the field.

Where the disease was not of long standing, and where it was unmixed with other diseases, it was not found difficult of cure. If it did not readily yield to bark, the other remedies of the same class, mineral and vegetable, were had recourse to, alone or in combination, according to the circumstances of the case. When bark is exhibited, an ounce or an ounce and a half should be given in the six hours before the expected paroxysm, smaller quantities being given during the interval. I have reason to think, that in many cases where bark had been reported to have failed, it had not been given in sufficient quantity. Aromatics or opiates will occasionally be required to make it sit upon the stomach. I directed trials to be made with *cinchona cordifolia* and *lancifolia*; the results were, that they cured intermittents in nearly equal proportions. Bark should not be too long persevered in, for we found that its effects, by long habit, are lost on the stomach: it was therefore deemed adviseable, either to leave it off for a while, resuming its use; to combine it with snake-root, aromatic powder, or stimulants; or to change it for quassia or other bitters, or tonics. Next to bark in efficacy was arsenic; and next to it the *zinci sulphas*. I have found this last to sit

best on the stomach in the form of a pill ; and have frequently given it to the amount of half a drachm a day.

I may mention that, in the Peninsula, as well as in other quarters, I have frequently known an empirical prescription with bark succeed in cases where, when given in the usual manner, this medicine had failed. It is, as far as I recollect, an ounce of bark, a table spoonful of Jamaica, or half a tea spoonful of Cayenne, pepper, and a whole nutmeg, mixed and given in one dose, a short time after the action of a gentle emetic, and between the paroxysms of recent cases ; in two cases out of three this will prevent the occurrence of another paroxysm.

In plethoric habits, some of the symptoms in the hot stage were relieved only by bleeding. Some gentlemen were in the habit of using the cold affusion in this stage.

In the chronic disease, particularly when combined with hepatitis, or swelling of the mesenteric glands, the preparations of mercury were given with success.

A symptom was found to remain not unfrequently after ague had been removed, viz. a great pain in the back part of the head, attended with a sense of fulness ; Dr. Buchan found that a return

to bark cured this, after topical bleeding, cathartics, and blisters had failed. I believe that much of the debility which followed intermittents is to be attributed to the use of cathartics. I fear likewise that in this disease as well as in dysentery, a state of debility is not unfrequently induced by the improper and nearly indiscriminate use of mercury; though the cautious use of this remedy will in both these diseases effect a cure or give relief when no other medicine will. Intermittents of long standing as well as dysenteries appear to have some connexion with the liver or the biliary secretion. When intermittent fever had continued for some time and proved obstinate, nothing was found to succeed but a change of air or voyage by sea.

Dysentery.

This disease has ever been the scourge of armies. I introduce it after intermittent fever, because these diseases were found to be so generally connected in the Peninsula, and intermittents were found to terminate so frequently in dysentery.

In the regimental hospitals there were altogether admitted 7526 cases; but this was by no means the whole that appeared in the army, the

greater part, and those which were the severest cases of disease, being treated in the general hospitals.

In the regimental hospitals there were ad-	
mitted in 1812	- - - 3241 cases,
1813	- - - 3420
1814 to the 24th of June,	865

I have in another place* expressed my opinion that there are two species of dysentery. From the first part of this paper, and from the description of the disease which will be given, it will be seen, whether some cases of the disease which occurred in the Peninsula might not be classed under what I have termed tropical dysentery, which is always intimately connected with disease of the liver, or of the system of the vena portarum.

In the dysentery which occurred in the Peninsular army, there were two stages of disease which it was of consequence to mark, because they required different and almost opposite modes of treatment; the first stage being decidedly inflammatory, and the second accompanied by ulceration, which not unfrequently terminated in chronic disease. Sometimes dysentery from its

* Medical Sketches of the Expedition from India to Egypt in 1804.

commencement appeared to be unattended with fever, and would in a very short time run into the chronic stage. In such cases however, I am inclined to believe the disease to be symptomatic either of disease of the biliary system, or of the mesenteric glands. In most cases, I think dysentery was accompanied by fever of the inflammatory type. The type of fever, however, accompanying dysentery was very much modified by that of the prevailing epidemic. In the hospitals in the Alentejo and Estremadura, in 1812, intermittent fever prevailed or accompanied dysentery, and remittent fever when the army advanced so rapidly and remained some time stationary in the two Castiles in July, August and September. Every case of dysentery which appeared in the battalions of the guards in 1812 and 1813, was accompanied by the typhus gravior, and very generally had a fatal termination, as did many at Ciudad Rodrigo, Celorico, and Viseu, where the same form of fever was prevalent. Dysentery appeared in the greatest number in the early part of 1813; but it had its origin, in the operations of the campaign of the former year; and I date the first appearance of the disease in great numbers to the month of August. The army, during June as well as July, was traversing Castile, where it was exposed to the direct influence of a burning sun, darting its rays through a sky without a single cloud; the troops marching and fighting during the day, and

bivouacking during the night on arid unsheltered plains. They felt at times every vicissitude of heat and cold. In the rapid advance they could not be regularly supplied with food, or had not time to cook it; and not unfrequently indulged in bad wine and unripe fruit. About the 20th July, the army began to make a retrograde movement; and the hospitals, particularly those at Salamanca, containing some thousand men ill chiefly of diarrhœa, dysentery, or remittent fever, were suddenly broken up, and the sick hurried off to the rear to Ciudad Rodrigo, which was the nearest hospital station to the frontier of Portugal. The situation of this place is by no means favourable for an hospital station; it proved a source of great mortality to us; however, we had no choice. The town is composed chiefly of ruins, with very narrow streets and some of them without a single inhabitant. It had been so much the object of contest, and alternately the site of the hospitals of all the contending armies, that nearly 20,000 bodies were calculated to have been put into the earth either in the town or under its walls in the course of a few months. Independently of these circumstances, the situation of Ciudad Rodrigo is unhealthy; it may therefore be imagined that its atmosphere was not the purest, and the surprise will not be great, that among the many conveyed to its hospitals from the front, a considerable mortality ensued, notwithstanding every effort

of the medical department ably conducted by Dr. Neale. In proportion as means of transport were found, and as soon as the hospital became overwhelmed with sick, they were removed to Celorico, Coimbra, and other stations; and it may easily be conceived, in what state cases of dysentery must have arrived, after having sustained a journey in extent from four to twenty days, conveyed chiefly in bullock cars or on the backs of mules, sometimes under incessant rain for several days together.

The divisions of the army which suffered most from this disease were the 1st, 5th and 6th, and they had been employed at the siege of Burgos, where the men were frequently for 24 hours up to their middle in water in the trenches, sleeping frequently in the open air, or in tents on ground which was moist or quite wet. I believe I have already stated that the clothing of the soldier was very bad, and if I add, that he had little or no bedding, I believe it will not be necessary to say any thing further to account for the great prevalence of dysentery thereafter.

Dysentery was a frequent and fatal disease in our hospitals in the Alentejo from October, and throughout the winter. It proved fatal to patients recovering from other diseases and particularly to those who from wounds had been a long time in hospital; in such cases it was not possible to

treat the disease actively at its commencement, in consequence of the subjects being too much debilitated by former diseases.

In the hospitals at Alta de Chao, Abrantes, and Santarem, the changes from intermittent to dysentery were very common, and they seemed to suspend the intermittent for a time; but no sooner was the dysenteric affection removed, than the intermittent returned; in some instances both diseases were attacking the same patient at the same time, and when this was the case, the dysenteric symptoms were aggravated.

In October there was a good deal of the disease in the hospitals at Coimbra; Dr. Erly states, that in many instances its progress was slow, but nevertheless fatal; sometimes after the tenesmus and griping were relieved, and the stools had become easy, though they were frequent, nothing that could be devised was found effectual in abating their frequency; and the poor patient at length fell a martyr to protracted sufferings. The fatal termination was observed to be very different in different individuals. Dr. Erly relates a case which he lost, in whom the dysenteric symptoms had completely subsided, and he slipped off in 12 hours with the symptoms of low fever. In three others all the dysenteric symptoms were apparently removed, the stools seemed natural, and the appetite was good; from these favourable ap-

pearances, he was led to hope for the most favourable results ; but he was unfortunately disappointed ; for they died on the third day after this seeming amendment. In these cases dissection discovered nothing different from the ordinary appearances in dysentery.

There was no place in which more dysentery was seen than in Abrantes in November 1812. Dr. Somers informed me that, since the setting in of the cold and wet weather, cases of dysentery of long standing were rapidly swept off; sometimes in a few hours. He says that men who, to all external appearance, and judging from the power of the circulation, were as well as for many preceding days, have suddenly, and therefore unexpectedly to the practitioner, sunk into dissolution in the course of one hour. This event occurred in numerous instances, notwithstanding every possible alleviation that could be derived from flannel clothing; and warm comfortable bedding had been seasonably provided in the hospitals. Sometimes, when hospitals were far from the seaports, and when the means of transport were difficult to be procured, as at Viseu, Celorico, Ciudad Rodrigo and Salamanca, the practitioner had not these auxiliaries in the treatment, and no doubt their patients would suffer in proportion.

Dysentery was the disease which produced the greatest mortality in the army. In a table of all

the diseases which terminated fatally in the Peninsular army, exclusive of the wounded, the mortality from dysentery appears to have been in the highest proportion.

We lost altogether by this disease, 4717. In the					
year 1812 we lost	-	-	-		2340
1813 -	-	-	-		1629
1814 to the 24th of June,	-				748

Considerable as this number may appear, when the disease was pure and uncombined, and when the cases were taken early, it was found very manageable in treatment; but if the first stage had been allowed to pass over, or if it were combined with much visceral disease, it was found to be most obstinate, and too frequently proved fatal. I have reason, however, to believe, that had it not been for the extremely unfavourable circumstances under which we practised in this disease, the mortality would have borne a very small proportion to that which actually occurred.

The practice of Dr. Buchan, Dr. Ferguson, Dr. Somers, Dr. Erly, Dr. Vetch, Drs. C. and James Forbes, Dr. Walker, (I may add the lamented names of the late Drs. Gray and Cabbell, and indeed of most practitioners,) was to attack the disease vigorously by depletion on its earliest commencement: I myself had seen much of the benefit

of this practice in the hospitals in and about Portsmouth, in the year 1810 and 1811, with many dysenteric cases received from the Peninsula. The plan of Dr. Somers appeared so judicious, and proved so successful on the first attacks of the pure unmixed disease, that I recommended its being generally followed in the army.

He commenced by copious venæsection, and immediately afterwards he gave pulv. ipecac. compos. gr. xii. every hour, which was repeated three times, with plenty of warm barley water; and profuse sweating was encouraged for six or eight hours. A pill of three grains of calomel and one of opium was administered every second night, and in the intervening day 3ij. of sulphat of magnesia, dissolved in a quart of light broth; the venæsection was to be repeated, while the state of the strength and pulse permit it, until the stools are free or nearly free from blood; following up this plan with the Dover's powder as a sudorific.

In cases where the pains were excruciating and attended with much tenesmus, the warm bath gave instantaneous relief. This plan being steadily persevered in for a few days, the inflammatory diathesis of the intestinal canal, which had excited symptomatic fever throughout the general system, was found gradually to yield, and make way for returning health. In this stage, gentle tonics, with light

nourishing diet, cautiously exhibited, and at first given but in very moderate portions, were introduced with the happiest effects.

As relapse was every where very frequent in this disease: it was our endeavour to caution the patient against irregularity of any kind; but it was not often in our power to prevent the unthinking soldier from indulging whenever the opportunity occurred. On a relapse from this cause, or if at any stage of the unmixed disease, there was much pain on pressing the abdomen, I have seen the lancet give immediate relief.

At Ciudad Rodrigo, in August 1812, from irregularity or excess in diet, the convalescents from fever frequently suffered an attack on the bowels in the shape of bilious diarrhœa, which commonly ended in dysentery.

The disease was not unfrequently cut short by the above plan; if however the second stage advanced, and the disease became chronic, a different mode of treatment was pursued, and not unsuccessfully, if the disease had not been of long duration, the intestinal canal much disorganized, or not complicated with other diseases.

The first indication in this stage was to relieve the tenesmus, and procure easy stools; with this view, ipecacuanha was given sometimes with calo-

mel and sometimes without it. The neutral salts were given, or *oleum ricini*, jalap, and various medicines of the same class. The second indication was to diminish the number of stools, and to restore tone to the alimentary canal; with this view, Dover's powder, *pulv. cret. composit. cum opio*, astringents and demulcents with aromatics were given; occasionally interposing laxatives, and obviating particular symptoms as they occurred. Lastly, an infusion of bitters was given to restore tone to the relaxed intestine.

The form in which we saw dysentery most frequently, was in combination with other diseases, or when there was diseased action, or disorganization of the viscera of the abdomen. I found that the viscus most frequently affected was the spleen, next to that the liver; which was indeed diseased in nearly an equal proportion of cases with the spleen. The mesenteric glands were not unfrequently found affected; and sometimes, the pancreas was one mass of disease.

It was when there was disease of the liver, or when there existed diseased action of the biliary system in dysentery, that mercury was found so highly useful, and it was from its singular utility in this combination of disease, that the practice has become so general of treating it, in all its stages, by this remedy; a treatment however which must in many cases be highly improper.

In cases where, along with dysenteric symptoms, we detect the obscure symptoms of chronic hepatitis, namely, dull pain in the region of the liver, in the right shoulder, tenderness on pressure, dull brown colour of the skin, or adnata, with uneasiness when the patient lies on any but the right side; in such cases, mercury never fails to cure, or at least relieve. In other dysentric cases, likewise without pain, but with uneasiness in the right side, or epigastrium, and when pain in the right shoulder is complained of, the disease is successfully treated by mercury. There was likewise a chronic disease, where not even the most obscure hepatic symptoms could be detected, most frequently consequent to acute dysentery, where without fever, and with but few stools daily, diseased action was kept up: mercury introduced so as to affect the system gently and gradually, with a light nourishing diet, effected a cure. Further, in that combination of the disease, with obstruction of the mesenteric glands, mercury appeared to be the only remedy that afforded relief.

These appeared to me to be the only cases of this disease in which mercury is pre-eminently useful; in the early stage of the acute and unmixed disease, and before repeated venæsection has been performed, it will aggravate the symptoms. In the more advanced stage of the disease, particularly when there is either hectic fever, with extensive

erosion, or ulceration of the intestine, it was invariably found to hurry it on to a fatal termination.

In most of the cases where the use of mercury was indicated, it was advisable to introduce it gradually and gently into the system. Sometimes there existed irritability of the stomach, and there was always very great debility; great circumspection was therefore necessary, in the introduction of a remedy, which of itself is so apt to produce debility, at the same time that it removes the urgent symptoms of disease.

It was reported to me, that this disease was apt to recur whenever the system ceased to be affected by mercury, and that relapse was more apt to occur after its use; however this may be, the cases are very numerous, where no other remedies gave the patient a chance of life.

Ipecacuanha, opium, and other articles were frequently given with calomel in small and frequently repeated doses; and some gentlemen gave the blue pill until the mouth was affected; but the general opinion was, that friction of the abdomen with mercurial ointment gave least irritation, and at the same time produced less debility.

During this practice, gentle purging by means of oleum ricini or the neutral salts was continued,

and the combination of an opiate with the diaphoretic was advantageously given at night or oftener, to procure sleep and allay irritation.

As adjuvantia, and to relieve troublesome symptoms, the warm bath, fomentations, and blisters to the abdomen, various enemata, warm clothing and flannel rollers, were usefully employed according to circumstances. In the chronic stage, and when there was much debility, success was not to be expected from any mode of treatment where the patient was unprovided with warm clothing and bedding; more particularly when the treatment was by mercury; and I regret to say, that not unfrequently we felt the want of these adjuvantia.

I have mentioned elsewhere* the plan recommended by Dr. White, of treating chronic dysentery by bandaging with flannel, and by the application of adhesive plaister to the abdomen. It was likewise tried in the Peninsula, and the reports in regard to it were extremely favourable. Both the plaister and bandage were by some gentlemen applied in every stage of the disease, and were said to have been found most serviceable in many cases both as affording an equal support, and keeping up a degree of warmth on the surface of the abdomen. Doing this in that situation, as well as in the lower extremities, was found to be very conducive to the

* Medical Sketches of the Expedition from India to Egypt.

cure of the disease ; it is, however, no doubt, in chronic dysentery, that this treatment will be found to be chiefly applicable.

The combination of nitric acid with opium was tried, and it was said to have been of use in a few cases of long continued dysentery, complicated with diseased viscera, where frequent stools, unaccompanied by pain and tension of the abdomen, were the most urgent symptoms.

Mr. Woolrich, in the hospitals at Celorico and Castello Branco, found great benefit from a mixture of balsam of copaiba in gum arabic, with an infusion of calumba, using occasionally gentle mercurial friction, flannel bandages, and a milk diet.

When frequent stools without pain were the most troublesome symptoms, the vegetable astringents, as hæmatoxylum, catechu, and kino, given in large quantities of mucilage, and assisted by opium, gave much relief.

Under the same circumstances, I have very frequently seen enemata afford signal relief, as I have also witnessed when there was erosion or ulceration of the intestine. I believe there exists a disease, often the consequence of dysentery, where with much debility there only remains abrasion or incipient ulceration of the intestine : such disease I have always considered as local, and within the

reach of topical applications. With this view of it, I have for many years been in the habit of throwing up a variety of substances, as enemata ; for dissection shews, that ulceration is almost always in the great gut, and within the reach of external applications. I have accordingly used astringents, emollients, opiates, and sedatives, according to circumstances ; but I have oftenest afforded signal relief, by a tolerably strong solution of superacetate of lead. Some gentlemen used an infusion of ipecacuanha, some the aqueous solution of opium, and some starch, rice-water, or milk.

It is, however, sometimes an objection to enemata of every description that the rectum being irritable or inflamed, a pipe cannot be introduced without adding to existing inflammation ; in such cases, the introduction of a grain or two of opium into the rectum, would frequently allay pain, and in some cases tenesmus, when every thing else had proved ineffectual.

In the combination of the disease with visceral affection, Dr. Irwin met it successfully in several cases with the conium maculatum ; and in some cases, by combining this medicine with calomel.

Among the sequelæ of dysentery, one of the most frequent is the tumid abdomen which usually proceeds from three causes, first, an extrication of air into the intestinal canal ; 2ndly, enlargement

of one or more of the abdominal viscera, most frequently the spleen and liver; and 3rdly, effusion into the cavity. The whole of these were not unfrequently combined, as the dissection reports forwarded to me testified most amply.

A great many of the bodies of the dysenteric were inspected, and a great uniformity was found in the morbid appearances. In those inspected under the superintendence of Mr. Guthrie, Mr. Hennon, and Mr. Arthur, at Elvas, Abrantes, Celorico, St. Andero, and Bilboa, they found ulcuscula, which had a healed appearance, being covered with a delicate extension of the villous coat, or a reparation of a new substance. Purulent collections formed in various parts of the canal. The liver, in many of these cases, was found hardened, of a dark complexion, enlarged, and with preternatural adhesions. In some cases, it appeared smaller than usual, and in these, the spleen was large and much diseased. They found the pancreas diseased not unfrequently; and sometimes the gall-bladder or its ducts.

The reports of most other gentlemen were similar to these. In a majority of cases, it was found, that the colon from the arch downwards, and the rectum more especially, were throughout in an ulcerated sloughy state; the liver and spleen in general preternaturally large, and verging to suppuration. One spleen weighed three pounds, four ounces.

In a report forwarded by Dr. Somers, of the appearances in the bodies of the dead of dysentery at Abrantes, which was stated nearly in the above words, he adds, “surely these occurrences, upon immediate dissection, would most forcibly and decisively seem to point out the negative cause of the melancholy catastrophe, namely, the fatal omission of the saving lancet.”

I have dwelt so much upon the subject of fever and dysentery, that I must greatly contract what I have to say of the remaining diseases which prevailed.

Pneumonia

Is one of the most frequent diseases of the soldier, and I have usually seen it prevail in a greater proportion in other services, than it did in that on which I am now treating.

1604	cases	were	admitted	into	the	regimental	
	hospitals	in	-	-	-	-	1812
1481	-	-	-	-	-	-	1813
942	-	-	-	to	24th	of June,	1814

4027 Total.

There died in all the hospitals, general as well as					
regimental, in 1812	-	-	-	-	58
1813	-	-	-	-	131
1814, to 24th of June,	-				96
					<hr/>
Total					285
					<hr/>

As it usually appears in the soldier, whether in the camp or in quarters, this disease requires the most prompt and vigorous treatment, and nowhere is the lancet so much to be depended on.

The military practitioner, in repeatedly abstracting blood, is not to be guided by quantity, or even by the appearance of the blood, but by the relief procured. If this relief be not afforded by a large bleeding, in a few hours the vein must be again opened; and this is to be repeated again and again until respiration is freely performed, and pain of the thorax removed. It cannot be too strongly impressed on the young military practitioner, that neither blistering, sudorifics, purging, or other remedy, can supply the place of bleeding, nor must he judge by what he has seen in private practice, where this sudden abstraction of a large quantity of blood would perhaps be improper.

Pneumonia prevails more among soldiers than in civil life; and well defined as this disease is by nosologists, it requires the experienced military prac-

itioner to detect it. It frequently happens, that the patient so far from exhibiting the well known diagnostics, appears to labour under every symptom of oppression and debility. Until strictly questioned, he complains of nothing so little as his breast. The true nature of the disease is not detected without the most experienced and scrupulous examination ; nor does it show itself in its natural colours, till the functions of the oppressed and congested lungs are in some degree restored by abstraction of blood. Without this relief, it cannot show itself ; for re-action under such circumstances cannot take place, and the practitioner is led into the fatal error of treating the disease as low fever.

This form of disease is nearly peculiar to soldiers, and their peculiar situation ; for it seldom in England affects the other inhabitants, as it results from sudden or incautious exposure to cold after breathing for some time the debilitating or vitiated atmosphere of a confined, ill ventilated quarter, or crowded barrack-room.

This form of pneumonic inflammation occurred particularly in the second division of the army, and I got the same account of it from the late Mr. M'Intosh, Mr. Guthrie, and Dr. Fergusson, who in succession superintended in that division of the army, from Mr. Higgins, who superintended the cavalry division of the army, and from Mr.

Thomson when in superintendence of the seventh division.

Dissection of the dead frequently showed, that inflammation had spread to the pericardium and heart, constituting carditis.

Phthisis Pulmonalis.

In England, this disease is as frequent and fatal in the army, as it is in civil life ; in Spain and Portugal, we found it of much more rare occurrence.

I find that there died of this disease in all the hospitals, regimental as well as general,

In 1812	-	-	-	-	49
1813	-	-	-	-	158
1814 to the 24th of June,					72
					<hr/> 279

which of the total mortality, excluding that from wounds, is a small proportion, and very widely different indeed from what I have found to be the case in the army in England. Under ordinary circumstances, and when no epidemic or contagious disease prevailed, I found in England the deaths from consumption to amount to one-fifth, one-fourth, and in some regiments even as high as one half of the whole mortality.

The expatriating phthisical patients to the milder southern climates, particularly to that of Portugal, has for many years been a highly sanctioned practice in England. On going to Portugal, I was desirous to obtain information on this subject, and particularly after reading the excellent paper of Dr. Wells in the 3rd Vol. of the Transactions of a Society for the Improvement of Medical and Surgical Knowledge. I circulated a series of queries on the subject, and the sum of the answers from the principal medical officers at the stations in Portugal where we had hospitals is as follows. In the period included, from the 25th June to the 24th September 1812 it appears, that the cases of phthisis at six hospital stations amount to - 54 Of remittent and intermittent fever to - - 1880 therefore the proportion of phthisis pulmonalis to remittent and intermittent fever is as 1 to 35.

The origin of the greater part of the cases is not distinctly stated; but of 16 treated at Lisbon 9 evidently originated in England, and 7 in Portugal sent from different hospital stations to Lisbon.

It clearly appears, that in the early stage of consumption, that is to say, when suppuration and ulceration have not yet taken place, the disease is checked by the climate of the Peninsula; but that when suppuration and ulceration have taken place, it runs even a more rapid progress than in England,

and I have made the same remark, in regard to the East and West Indies.

Of 30 cases of phthisis, 14 died, and one was not likely to recover, and the remainder continued in hospital to the end of the quarter. Of 24 at Coimbra, the proportion of deaths is not stated; but it is stated; that the disease in general proceeded rapidly to a fatal termination. The progress of phthisis appeared to be accelerated by attacks of intermittent fever, and the phthisical predisposition did not appear to confer any exemption from the attack of that disease.

I repeated my queries, and got the results of another quarter's inquiry, and I found that in this period at Alta de Chaô in Estremadura,

4 cases of phthisis appeared, 2 of which originated at Alta de Chaô,

7 cases of remittent fever	5	Do.	Do.
526 cases of ague	- 192	Do.	Do.

At Castello Branco, a very high and dry situation in Beira,

Of 171 cases of continued fever 17 originated there
169 intermittent 38 Do.

No case of phthisis.

At Lisbon,

3 cases of phthisis admitted; none of them originated at Lisbon.

31 cases of remittent and intermittent fever ; 17
originated at Lisbon.

At Santarem there appeared during this period
10 well marked cases of phthisis, and 666 cases of
intermittent fever.

At Celorico,

2 cases of phthisis,
50 - remittent, and
66 - intermittent fever.

2nd division of the army about 6,500 strong :

4 cases of phthisis pulmonalis admitted,
551 - remittent fever,
1566 - intermitent do.

On the whole, the result of much inquiry was
that phthisis and scrofula, although occasionally
occurring, are rare diseases in Portugal. There
seems to be but little predisposition in the natives,
or in those some time resident in Portugal, to in-
flammatory and pulmonic complaints ; and the lat-
ter seems to be less violent and more easily curable
than in England. It would appear, that persons
coming to Portugal or Spain, and I may add to
part of France, from colder climates, with only a
predisposition to phthisis, with tubercles in the
lungs in a quiescent state, or not actually suppu-
rating, do receive some benefit from the sea voy-
age or change of air, or rather that the disease

does not make any progress. When however suppuration and ulceration have taken place, the result is almost always as fatal and in as short a time, as if the experiment had not been tried of change of climate.

Dr. Ferguson, Dr. Somers, and the late Dr. Gray, resided each of them several years at Lisbon, and saw most of the phthisical cases sent there from England, particularly Dr. Somers, who resided there four years as a practising physician; and it is the result of the experience of these gentlemen that though the cough abated of its violence, as might naturally be expected from the milder temperature, that patients seldom received any other sensible alleviation. Dr. Somers informed me, that he never witnessed a complete recovery; inso-much, that for the last two years, he uniformly set down the cases for return to their native country, resting assuredly some hope, in favourable seasons, on the probable efficacy of the voyage. He informed me, that he had never seen the genuine British phthisis originate in Portugal.

When I was at Montpellier I learned from the professional gentlemen there, that the result of their experience on patients sent thither in these stages of phthisis, was nearly what I have stated to have been in Lisbon. They further informed me, that the high and very dry air of that place

was particularly unfavourable to some species of the disease, and that not a few cases originated in that country.

The situation of Montpellier is singular; it will be recollected that it is intermediate between the Pyrenees and Alps: both are to be seen from the beautiful public gardens of the town. The vicinity of the mountains to the north of Montpellier renders the climate in winter and spring very changeable, and this is found to be a cause of much mischief to phthisical patients. Those causes which originated in the country were generally from the neighbourhood of Montpellier. There are other situations that appear better for the consumptive than Montpellier; viz. between that place and Nismes, and near the banks of the Garonne from Toulouse to Bourdeaux. Lisbon has many disadvantages for the phthisical, from the vicinity of a mountainous country and the neighbouring sea, and from the total want of protection in all the houses against change of temperature.

The result of our experience in Walcheren was, that the air was in general favorable to pulmonic complaints. A physician from whom I have derived a good deal of the information which I now submit to the Society, in that island got entirely free of an asthma, under which he had laboured for many years of his life.

The appearance of Dr. Woolcombe's work excited my attention to this disease, as it appeared in the troops stationed in Hampshire, Somersetshire, Dorsetshire, and the neighbouring counties then under my medical inspection. The troops were mostly militia regiments, the greater part of them in garrison at Portsmouth, Bristol, or Weymouth. The surgeons had the best means of knowing the origin and every particular of the cases which occurred in their corps, and, at my request, paid much attention to them.

By a tabular statement, which, early in 1811, I drew out from the reports of these gentlemen and my own examination of the cases, I find, that from July 1808 to February 1811 I have a minute detail of 52 cases ; the result is as follows :

31	died,
7	were cured,
7	were getting worse,
4	were better,
1	was discharged from his regiment,
2	went to live with their friends, fate not known.

Under the head causes :

3	originated after continued fever,
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18	-	-	Pneumonia,
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7	-	-	Catarrh,
---	---	---	----------

8	-	-	Hæmoptysis,
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- 5 - - Rubeola,
- 3 - - Syphilis,
- 2 - - Asthma,
- 1 - - Scrophula,
- 3 from hereditary disposition,
- 1 from playing on wind-instruments,
- 1 had obstruction of the abdominal viscera,

Of these men,

- 18 were labourers before they became soldiers,
- 13 were weavers,
- 5 Shoemakers,
- 3 Tailors,
- 2 Gardeners,
- 1 Flax-dresser,
- 1 Clothier,
- 1 Hatter,
- 1 Needle-pointer,
- 1 Butcher,
- 1 Nailor,
- 1 Blacksmith,
- 2 Schoolmaster.
- 2 Unknown.

- 8 of them occurred in the Lancashire Militia,
- 7 - - - 8th Veteran Battalion,
- 6 - - - Inverness Militia,
- 6 - - - Sussex Do,
- 5 - - - Worcester Do.
- 4 - - - North Gloucester,
- 3 - - - East Suffolk,

3	-	-	-	1st York,
2	-	-	-	East Middlesex,
2	-	-	-	Glamorgan,
3	-	-	-	North Hants,
1	-	-	-	Northampton,
1	-	-	-	Pembroke,
1	-	-	-	Oxford,
1	-	-	-	Dorset,
1	-	-	-	11th light dragoons,

It is observable, that none of these cases occurred in the regiments of the marshy counties in which intermittent fevers are endemic.

Rheumatism.

The number of patients which appears to have been admitted into regimental hospitals with this disease is 4,933; a great portion of the cases had their origin from the duties of fatigue at the siege of Ciudad Rodrigo, Badajos and Burgos.

Mr. Paddock was at Santarem in November 1812, successful in some old chronic cases which had resisted the usual treatment, by giving spirit of turpentine in doses of $\mathfrak{z}\text{l}$ twice a day. He occasionally gave \mathfrak{z} 's as a purge. As it is now usual to give doses of $\mathfrak{z}\text{ii}$ of this in tape-worm with safety, a free trial may be made.

After the retreat, and as late as February 1813, rheumatism of the feet was very prevalent, particularly in the 5th division of the army. Mr. Hill, who superintended the hospitals in this division, informed me that the sick, as well as the convalescents, complained of distressing pains in their feet; nothing but opium and keeping their feet in warm water, was found to give them relief; by the warm water the hardened cuticles were removed and perspiration induced.

Some gentlemen reported favourably of the arseniated solution of potash in chronic rheumatism.

Tetanus.

This very formidable disease, as I have already stated in the first part, was always very prevalent among the wounded after the great battles.

I was at some pains to collect information relative to a disease, which was so frequent and fatal in the Peninsula: for among several hundred cases detailed, there are very few, where this disease had made any progress, in which remedies, however varied, seemed to have any influence on it.

An interesting case is related by Mr. Nixon, Deputy Inspector of Hospitals, which occurred in

the march of the guards through Gallicia, and in which the patient recovered apparently, in consequence of long continued accidental exposure to severe wet and cold.

The symptoms of the disease occurred from a slight wound of the finger, and are stated to have been unusually severe. As it was impossible to think of leaving the man in the wretched village where he was attacked by the disease, he was carried on a bullock car after the battalion. During the first part of the day he was drenched with rain, the thermometer standing at 52° ; but after ascending one of the highest mountains in Gallicia the snow was knee deep, and the thermometer below 30° . The patient was exposed to this inclement weather from six o'clock in the morning till ten at night, when he arrived half starved to death, but perfectly free from every symptom of tetanus.

A successful case is related by staff-surgeon Dakers, where the patient was attacked by the disease on the 17th day after a dreadful accident which rendered amputation of the arm necessary, and by which the man was also terribly scorched, the sternum fractured, and one eye destroyed. The spasms were principally confined to the posterior muscles, as it is stated that the jaw was not much affected except during the convulsive fits, which were frequent and severe for about a week

before any favourable change took place. The treatment consisted in exhibiting a dose of laudanum, which did not exceed 20 drops every second hour, and in the intermediate hour a dose of carbonate of potash in mint water, which was gradually augmented; but 15 grains was the largest dose. The patient was also put into a warm bath, of which the water was rendered alkaline, twice a day. He recovered perfectly in about three weeks.

A case is related by assistant-surgeon Fiorilli, of the 1st German hussars, which was successfully treated by the same remedies. The disease followed a lacerated wound of the foot. The alkali and opium were given alternately every half-hour, in the quantity of three grains of the former, and one-fourth grain of the latter; but the dose was gradually augmented, and given every quarter of an hour. After twenty-four hours, the patient felt much relieved, and a gentle diaphoresis took place. The medicine was gradually diminished, and the patient in a few days recovered. The wound was covered with fomentations during the treatment.

Surgeon Brown, of the mounted staff corps, saw several cases at Elvas, after the battle of Albuera. Opium was the favourite remedy, and every case so treated died.

Two young stout officers, the one wounded in the arm, the other having suffered amputation of a finger, were attacked with violent spasms about the throat, and the jaw began to be affected in both. Emollient poultices were applied to the wounds, they were bled largely, and in one the bleeding was repeated; their bowels were opened, and the antiphlogistic regimen was strictly observed. These alarming symptoms yielded to this plan of treatment.

In the case of Col. Sir George Elder, successfully treated by Dr. C. Forbes, opium, calomel, mercurial friction, tinct. opii, in large quantities rubbed in on the surface of the body, wine, and spirits in the form of punch, were liberally administered, so that drowsiness was produced by the opium, and the mouth was affected by the mercury. But although considerable benefit was derived from the use of these remedies, Dr. Forbes is of opinion, that to the rigid perseverance in purgatives given in doses to produce a full effect daily, must be chiefly attributed the removal of this formidable disease. A solution of the sulphat of magnesia in infusion of senna answered better than any other purgative, and it was daily given in a sufficient dose to procure a copious evacuation, which was always dark coloured and highly offensive.

This terrible disease is too easily distinguished

to require detailed description. It occurs in every description and in every stage of wounds, from the slightest to the most formidable, from the healthy and the sloughing, from the incised and lacerated, from the most simple and most complicated. It occurs at uncertain periods; but it is remarked, that if it does not occur for 22 days from the date of the wound, the patient is safe. It terminates in the second, third, and fourth days, and even as late as the 17th and 20th day, though usually it was not protracted beyond the eighth. Mr. Guthrie, who attended much to the cases that occurred at Toulouse, as well as those which occurred at Talavera and Salamanca, divided the disease according to its short duration or protraction, into two species, viz. acute and the mild, which he thought were independent of peculiarity of constitution. In most cases the patient is cut off by a terrible spasm, but he sometimes dies as if exhausted by the continuance of excruciating pain.

The arterial system is scarcely at all affected; except that frequency of pulse is produced by the excruciating spasms. The skin is at first natural, but as the disease advances is covered by a cold sweat; there is throughout obstinate constipation of the bowels, which require the most drastic purgatives, with a great sense of uneasiness about the præcordia; the tongue is always moist.

The remedies which have been chiefly trusted

to for the cure of this formidable disease are opium, mercury, wine, warm and cold bath, venæsection, ipecacuanha and digitalis in large doses, enlargement of the original wound, and amputation of the limb. These have been tried alone and in various combinations, and I am obliged to confess that the whole failed, in almost every acute case of tetanus which occurred. The three first have been administered in unlimited doses without effect; the cold bath is worse than useless.

The reports of Dr. Emery, Mr. Guthrie and other gentlemen after the battle of Salamanca, are evidence that frictions of mercurial ointment, so strongly recommended on various occasions, completely failed of making any impression on the disease. They tried inunction of the whole body, three times a day, with strong mercurial ointment in unlimited quantity. Mr. Guthrie informed me that after the battle of Toulouse, a fatal case occurred in a man strongly under the influence of mercury, which he had used previous to the action for the cure of the itch.

From the extensive trials which were made with us with opium and mercury, I consider them as perfectly inert in this disease when acute or fully formed; they should only be used as *adjuvantia*, and we must look to other means; wine,

brandy and other stimulants were found equally useless.

The submuriate of mercury was given in very large doses alone, and in combination with as much ipecacuanha as could be retained on the stomach, but with no effect on the acute and fully formed disease. In the mild tetanus benefit has been derived from hydrargyri submurias, as it has indeed from many other remedies. The operation of calomel on the bowels was always useful; and singularly so in the mild disease distinguished by the spasms coming on slowly and continuing of the same violence; instead of their sudden accession and their continuing with increasing violence as happens in the acute fully formed tetanus. In this, calomel cannot be depended on, for we found the patient carried off before the medicine could have any effect.

Venæsection had also a fair trial in several quarters and in a great many instances. Mr. Guthrie gives three cases in the hospitals at St. Andero out of many which are detailed, where this was the principal remedy. In the first of the three the patient had a wound of the back of the hand, when tetanus appeared and advanced with rapidity. This man was bled nearly *ad deliquium* several times with good effect, calomel and diaphoretics being given at the same time, and he recovered. It is worthy of remark, that the hospital gangrene

affected his hand at the same time, and destroyed a considerable part of it.

In the second case the patient was bled in the same manner, with an evident amendment of the symptoms ; so much so indeed that he suffered but little from spasm and could open his mouth very well, when he was seized with diarrhœa, which, in the debilitated state he was in, carried him off. In the third case of a man of a sanguine temperament, and suffering from acute tetanus, venæsection pushed to the utmost totally failed.

The warm bath in some instances gave a little relief, and cold bathing did the same. A case that occurred at Orthes, under the superintendence of Mr. Thomson, was somewhat similar to Mr. Nixon's case.

Tobacco glysters tried in the advanced stage of the disease seemed to have no effect,

Free incisions in and about the original wounds are of little avail in the acute and fully formed disease. Amputation, as recommended by the baron Larry, totally failed in the fully formed disease : it was tried in many cases at Toulouse. Indeed I believe this gentleman's opinion is altered since he published the result of his experience in Egypt. I had some conversation with him on the subject ; but I have been recently informed by

Mr. Guthrie, that the baron distinctly acknowledged to him, that the loss of the French army after the battle near Dresden was principally from tetanus, when of course this practice must have been fairly tried.

The warm bath procured only momentary relief.

I am in possession of the detail of several cases where digitalis was tried; in one of these by Mr. Guthrie, the patient took digitalis with purgative and diaphoretic medicines after he had been largely bled to the amount of 50 ounces at a time. By the slow progress which the disease made, it is that species of it which I would denominate tetanus mitior. It commenced on the 12th, but was not noticed until the 16th day after the injury, which was a very slight one on the foot. It was immediately enlarged extensively; 20 drops of the tincture of digitalis every two hours were given two days after with two grains of calomel and pulv. antimonialis. Pulse 120. The same evening the quantity of digitalis was increased to 3ss. pulse 130. At night the medicine increased to 50 drops. The next morning the pulse was 96, the bowels regular, and the man in all respects better. On the 19th day the mercury had affected his mouth, the digitalis had been continued the pulse 100. the disease rather increasing. The same night his pulse fell to 90, and he was easier. On

the 24th he was much better, but very weak, his mouth sore, the pain less, had suffered from profuse perspiration, the pulse in a recumbent posture, 96. It was thought advisable to reduce the digitalis to 40 drops, and to omit the pill. On the 25th the digitalis only taken four times a day, the jaw could be partly opened but was still stiff, free from pain excepting the groin of the left side; 50 drops of tinct. opii at night to procure sleep. The next day, the 26th, considerably worse, and 80 drops of tinct. were given every two hours. On the 27th day the pulse sunk to 70 and became irregular, some pulsations being full, others small, which was for the first time observed, and the digitalis was diminished, and then omitted during the night, but resumed on the 28th day, and with some little advantage. On the 29th day of the injury and 13th of the treatment, he got out of bed to go to the close-stool, which he effected, returned to bed, laid down and expired without a groan, apparently from the influence of the digitalis. The jaw remained fixed to the last, and he was never entirely free from spasms. In this case the digitalis appears somewhat to have averted the progress of the disease, but could not cure it, the man daily declining in strength.

I ought to mention that æther, camphor, musk, and other antispasmodics, as likewise the alkalies, were tried, and found equally unsuccessful.

At this moment I am unable to say precisely the number of cases that were treated as they are included in the returns under the head wounds ; however there were some hundred cases affording room for extensive trials. I am however obliged to confess, that little or no dependence is to be placed in any of the remedies, and I have to regret that the method of cure is yet to be discovered. In pointing out what military practice has enabled us to do, towards ascertaining the effects of medicines in large doses, and carried to their ultimate extent, I hope to leave the ground more open for the trial of new remedies. Judging from the very few successful cases, we may be disposed to trust principally to blood-letting, purging, opium and digitalis. As the disease appears to terminate in free sweating in some of the few successful cases, Dover's powder may be useful, and the vegetable alkali and tocacco fume are deserving of further trial.

I should next proceed to phagedenic ulcer, or hospital gangrene, as it is termed. We had such ample experience of this disease, that I shall reserve what I have to say of it to a future communication.

There was sometimes not a little trouble and embarrassment by leeches getting into the soldiers' throats, in the Alentejo ; but on this and other subjects which are immediately surgical, I have the less occasion to enter, as they are likely to fall into

the hands of one, who, while he can bestow time and attention on them, is master of the subject. From the specimen which my friend Mr. Guthrie has lately given in the first part of his system of Military Surgery, the medical world will have no cause to regret that this task has devolved on him.

In finishing what I have to say on the second part of my paper, I beg to state that the observations apply principally to the early part of the period, and I have not had leisure to go with requisite minuteness beyond February 1813.

I beg in this place to add a statement of the number of -deaths, specifying the diseases, from December 1811 to June 1814; and I have to express my regret that from the nature of the service on which we were engaged, it was not found possible to obtain correct returns every where of the numbers of each disease treated, distinguishing under separate heads those who recovered, were sent to England, or died. This has always been done in the Regimental Hospitals, but was found impracticable in the general hospitals.

Since this was written, and when I was at the hospital at Yarmouth, visiting the wounded who arrived there from Waterloo. Dr. Buchan shewed me a case of chronic tetanus; the detail of it was drawn up at my desire by one of the young gentlemen at the hospital, and is as follows.

John Clail, (ætatis 22), admitted July 13th 1815, from Flanders, was attacked about four years ago, with ague, from which he recovered so perfectly that he served during the campaign previous to the retreat from Burgos. In consequence of the fatigue he underwent, and the privations he suffered, he was attacked on the retreat by a fever, the first symptom of which was great debility, which lasted about a month before he was sensible of the disease. He was not in hospital during this month ; he can give no account of the source of the disease, because he was delirious from the commencement, and the first thing he noticed upon recovery was the inability to move his jaws ; he has been blistered, used friction, and taken purgatives without effect. At times he has been able to open his mouth so far as to admit one of his fingers ; he is not affected by moist or foggy weather ; cannot say whether he is worse in easterly winds or not ; but thinks he is relieved by warm weather. The disease was never alleviated by exercise, nor by increased perspiration, unless when he has perspired during the night ; except in this instance he has never felt better in the morning than in the evening, nor does the heat of the bed affect him.

Has never experienced any stiffness or spasm of the muscles of the neck, or top of the shoulders, even when sleeping in the open air during the campaign.

Was wounded on the 18th of June, by a musket ball, which entered at the extremity of the metacarpal bone of the little finger, and ran across the extremity of the metacarpal bone of the ring finger, directly under the skin, exposing the flexor tendons of the fingers, and then entered at the first joint of the fore-finger, and ran obliquely across to the second joint.

At present the wound looks rather foul; discharge unhealthy; granulations glossy and rather pale. Felt his complaint no worse after he was wounded, and never did so till he arrived at the hospital, at which time his jaws were completely shut. He is at present much in his usual state; he can open his mouth so as to put out the apex of his tongue. Has no hardness over the masseter muscle, but his right cheek is fuller than the left, and fuller than natural. The submaxillary glands seem a little enlarged and indurated.

General health pretty good. Skin cool. Tongue appears clean. Belly rather bound. Appetite impaired. Looks dejected. Pulse 80, and feeble.

Before leaving this part of my subject, I ought to explain that for the three first months in 1812, and before I had fully established the forms of returns of the diseases and deaths in the Peninsular Army, the statements are frequently imperfect, there

being no specification of disease, or, at most, all are thrown into five or six general heads.

P A R T III.

Prevention.

I come now to the third and last part of my paper, that which relates to the prevention of disease, and diminution of mortality. As the general causes of unhealthiness in the Peninsular Army, have been entered into in the first part of my paper I shall only offer a few remarks. It is not my intention to enter on all the causes of unhealthiness of armies.

Much has been done in the naval service of the country, towards rendering sailors healthy on ship-board, and during long voyages. The discoveries and improvements which led to this object, had their origin with Captain Cook ; but the greatest part has been effected by professional men, who have reflected lustre on that branch of the public service, more especially a Lind and a Blane. Very much has likewise been effected in the army, and the nation at large is indebted to Sir John Pringle ; Monro, Brocklesby, and others, likewise did much ; but great improvements have likewise been introduced within the last twenty years, and a very great degree of health attained in our armies. Aided by the discoveries which

of late years have been made in chemical science, professional men in the navy and army have, by experience and observation, introduced improvements, which in ordinary circumstances keep not only our sailors and soldiers, but felons in jails and hulks, as well as the prisoners of war who fall into our hands, more healthy than the same classes in civil society*. In the navy, this high degree of health is obtained and kept up during the longest voyages, and in every climate; but there are circumstances, which necessarily will often prevent our fully attaining it in armies.

A fleet under ordinary circumstances, when the discipline and internal economy of the ships are good; having the store of warm clothing and wholesome victuals, with which they are always supplied; having likewise the means of perfect ventilation, and cleanliness; and above all, having it in their power to keep disorder and intemperance in check, can attain a degree of health which can never be expected in an army on active service. A retrospect to the historical part of this paper will show, that it would be in vain to look for this extreme degree of health in the army which marched over great part of Portugal, Spain, and France.

The same high degree of health, the army does however often attain on home service; and I have seen it in some corps, which had been some time

* A statement is subjoined of the state of the hulks at Portsmouth, for a period of the last ten years.

stationary at the Cape of Good Hope, India, and even in the West Indies ; and I have reason to believe that of late years, it has likewise been attained even on the coast of Africa.

It is a self evident truth, that no army can be healthy, the materials of which are either infirm or unsound. The duty of inspecting men entering the service, or sent abroad for the active duties of the field, is a most important one to the state, and should be most scrupulously performed. Lads unequal to the harrassing duties of the service, and men whose frame has been worn out by disease or climate, ought to be uniformly rejected ; as well as those labouring under any disease.

During the period I was stationed at Portsmouth, a regulation took place, which I know to have been productive of the best effects to the service, and which now obtains at every port where embarkations take place. Previously to the embarkation of any troops, and as soon as the agent for transports reports a vessel ready for their reception, she is inspected by a medical officer appointed for this duty, who examines the quality of the water and of every article of the provisions, the space and accommodations allotted for the troops, as well as the sick births, and the means of preserving cleanliness, ventilation and fumigation, on all which subjects he makes a report. As soon as the troops are embarked, he inspects them on board, reporting any sick that may be among either the men, women,

or children ; how far they preserve cleanliness and ventilation, the state of the assortment of medicines and medical comforts. Whenever troops arrived at Lisbon or other parts for the service in the Peninsula, a similar inspection was made previously to their landing, and a report was forwarded to me, by the inspecting officer, of the casualties on the voyage, and an account of any diseases which had appeared.

It is of consequence, that troops coming to a climate different from their own, should be somewhat habituated to it before they enter on the fatigues of the service. Whenever it could be done, (which was rarely) corps were detained for some time at the port at which they landed. New levies, or regiments having many recruits, should, if possible, be first sent on garrison duty.

The practice was a good one of sending troops destined for the Peninsular service, to Gibraltar or Cadiz for some time before they joined the army ; recruits by this means attained the habits of soldiers, and were inured to the climate and peculiar service, before they entered into all its fatigues. In order however to obtain the full benefit of this measure, it is not sufficient, that troops remain in an inactive state in these garrisons ; they ought to be frequently marched, and by degrees in the sun, otherwise they will always be found to tumble down with the fatigues of service when they join an army engaged in the active operations of the field.

Corps were always found most ineffective, and sending most men to the hospitals, the first year after they come out to the Peninsula ; they were proportionately less ineffective the second year, and still less the third ; and I believe, that in making calculations for measures in the field, it would be found that 300 men who had served five years were more effective and more to be depended upon than a regiment of a 1000 men which had just arrived. I know from experience, that this applies still more particularly to the service in India. The case of two regiments in the Peninsula, is illustrative of this viz. the 7th and 40th ; both of them particularly sickly battalions, and losing at one time many men by disease. The 7th regiment from the 19th of August 1811, to the 20th of May 1812, lost 246 men ; of this number were 169 recruits out of 353 landed the preceding June, while out of 1145 old soldiers in this regiment, there died in the same period only 77. In the 40th regiment of 170 deaths, there were 104 out of 450 recruits landed in the preceding July, and only 66 out of 1117 old soldiers in this period ; yet no regiments on that service were more ably commanded, or better officered than the fusileers and 40th regiment.

Of the classes of society from which soldiers are recruited, I believe it will be found that *cæteris paribus*, tradesmen and manufacturers, particularly those from large towns, are soonest swept away by the fatigues and diseases of an army ; and that those who have followed agricultural

pursuits are the most healthy. 358 recruits joined the 7th regiment in Portugal, in 1810-11, 201 of them were artificers and manufacturers, and 152 had followed agricultural pursuits. In the course of a few months 122 of the former died, and 62 of the latter; the proportion being 6 out of 10 in the former case, and 4 out of 10 in the latter. In the period antecedent to my arrival in the Peninsula, I understood that this had been one of the most unhealthy regiments in the army.

To whatever quarter the British army may be sent, it is desirable, that corps or recruits should be sent out to it so as to join about the close of a campaign, and when the army is about to get into quarters; this was latterly done as much as possible in the Peninsular army, and with the most manifest advantage; as the corps thus joined were initiated in the habits and mode of living on service, before they entered into its fatigues. On my way from Madrid to Salamanca in August 1812, I met a detachment of the 43d regiment proceeding to join their corps, and I learned that of 300 men landed at Lisbon and immediately sent on to the army, little more than 30 men had got to Madrid, all the rest having either from fatigue or disease been left at the hospitals on their route.

How necessary warm clothing is to the soldier, may be conceived if we reflect how frequently he sleeps in the open air, often in cool nights, and sometimes under dews and night fogs, and how sub-

ject he is to the alternations of heat and cold, the fruitful source of one class of disease. From the nature of the service in which we were engaged, it was not possible to have the men always regularly clothed, though our illustrious commander was never inattentive to this, or to any thing that could conduce to the soldier's comfort. In whatever climate or quarter of the world a regiment is stationed, the yearly supply of clothing for it should be sent out, so as to arrive in due time, and so that the soldier may put it on before the accession of the cold season; that is, before winter sets in in Europe, and by the time the rains set in in tropical countries. The waistcoat is an indispensable part of the clothing of a soldier, and ought never to be omitted. He should have linen trowsers to march in when in a warm climate like that of the Peninsula, reserving the cloth pantaloons for the cold and rainy season. The best clothed were generally among the most healthy regiments.

The health of an army depends in no slender degree, on the quality of the provisions and on the regular supply of them. Some of the divisions of the army appeared to derive a superior degree of health from attention to these circumstances. Some of them were always supplied with abundance of good meat, wholesome wine, and excellent bread; while others complained of their meat, got spirits instead of wine, biscuit instead of bread, or sometimes had neither bread nor biscuit, receiving in lieu of it a portion of flour, or an additional

quantity of meat. It was the duty of the superintending medical officer of a division to see these things, and to report to me whenever they were complained of, or were equal to the production of disease. This was done for my satisfaction: at the same time I must state, that generals of division were usually paternal in their attention to the soldier, as well as most commanding officers of regiments.

If left to himself, the soldier would broil his modicum of meat and eat it at one meal, drinking his allowance of wine or spirits at a draught. It is needless to say, how hurtful this must be to a man undergoing great fatigue and requiring much nutriment. The orders of the Duke of Wellington were, that whether in the field or in quarters, the men should be divided into messes, have regular meals, their meat be well boiled, with a portion of vegetables and salt (whenever they could be procured): and under the inspection of their officers.

With proper arrangement, the soldier may likewise always be regularly supplied with a warm breakfast. If it were possible to issue the rations to the soldier daily, it would be greatly conducive to the preservation of his health. When three days' rations of his provisions are issued to him at once, he frequently consumes or destroys the whole on the 1st day, being two days without any, unless he has an opportunity of plundering.

The efficiency of an army must ever depend upon the state of health of the corps which compose it, and no regiment will be ever found healthy, when the internal œconomy is bad. It is a trite but true observation, that a good commanding officer will generally have a healthy and effective regiment. The system which prevailed in most regiments that served in the Peninsula, ensured a state of health. Wherever there was much attention paid to the discipline and exercise of the men, where they were well fed, personal cleanliness, as well as of their quarters kept up : the men's clothing, if not new, always kept in repair ; and the men regularly messed, that regiment was almost invariably found healthy. The temperance, steadiness, and regular habits of the German legion kept them always in a state of health*.

During the last campaigns, and indeed since 1812, the soldiers rarely slept in the open air or were quartered in towns. They were either in huts which they themselves constructed, or they were dispersed in small villages. The huts were speedily constructed, and the tents got up ; thus we had it frequently in our power to change the ground of encampment. When the men were in villages they themselves constructed fire places every where. I have evidence, that the construction of

* The first German Hussars neither lost a man, nor sent one to the general hospitals, during the retreat from Burgos, nor till after the next campaign was opened, and when we were advancing into France.

them in the men's quarters, and particularly in all the buildings appropriated for hospitals, conduced greatly to the men's health. Though it be an object of some consequence, that in the summer and autumnal months, the soldier should march as light and disencumbered as possible; yet in September and October, when dysentery prevails, and thereafter inflammatory diseases, warmth is necessary; and it was recommended that the men's blankets and great coats should be issued to them.

In many parts of Portugal and Spain, particularly in the Alentejo and Estremadura, the quality of the water was very bad, and attention to it was very necessary in making choice of situations for camps or cantonments.

When we came into quarters, indolence and inactivity were not allowed to succeed to the incessant marching and harassing fatigues of the field; but at the same time that discipline was kept up, the amusements of the soldier were encouraged, and he had constant field exercise.

The want of transport was much felt and complained of in the Peninsula; but besides the spring waggons for the conveyance of the sick, I recommended each corps being supplied with a tilted cart. They were thus enabled to aid those slightly ill, by carrying their arms, knapsacks, and occasionally themselves; by giving this assistance to those slightly ill, and the giving medicine on the

earliest complaint of illness,* a very great number of men were thus prevented from going to the rear, and the effective force of the army kept up.

I believe I have now noticed the principal points which in the Peninsular army brought about that extraordinary degree of health which it enjoyed under many disadvantages, during the last year and half it was on that service. I shall conclude by shortly adverting to a few of the most prominent circumstances by which mortality was diminished in our hospitals.

I need say nothing regarding the preservation of cleanliness, ventilation, and other particulars now so well understood every where. I believe that the general hospitals in the Peninsula were in as perfect order as hospitals ever were; and it is but justice to the officers whom I found in the superintendence of them on my arrival in the Peninsula, that I should state my having found several of them in excellent order. Soon after I joined the Peninsular army, I drew out, under the sanction of Lord Wellington, instructions for the medical department; to this I subjoined a pharmacopœia with formulæ, for the use of all the hospitals, general or regimental; compiled chiefly from the

* In what regards the health of its armies, the state should spare no expence in granting freely whatever is conducive to the health of the soldier. Government not only promote in the most effectual manner the objects of war, but of economy, by saving hospital expenditure, leaving humanity out of the question.

communications which I received from the physicians of the army. The whole was printed and distributed to the medical officers.

Sir John Pringle, in enumerating the causes of mortality in the army, has represented hospitals themselves as one of the chief of them ; and very justly. It is conformable to all medical experience, that where large bodies of sick are brought together, disease is frequently aggravated, and contagion sometimes generated. I therefore early arranged so that every corps in the army established its own hospital, sending only to the rear, to the general hospitals, severe cases of disease ; and these only upon particular occasions. Thus every acute disease was at least in its first stage treated by the regimental surgeon, who never sent away any slight ailments. But it must not be thought, that general hospitals were dispensed with ; by no means. In many situations, and always on service, experience has shown me that they are indispensable, and when well regulated they afford the most comforts to the sick soldier, worn down by protracted disease ; as in them he has the advice and attendance of the ablest and most experienced medical officers.

Whenever a station was fixed on for a general hospital, it was ordered, that a separate hospital or building should be established for the reception of continued fever, where cases of dysentery might likewise be sent, if they were not numerous, and a separate building could not be obtained for

them. A separate hospital or hospitals were established for surgical cases, were likewise all cases of chronic disease and of intermittent might be placed. A convalescent hospital was established most commonly without the walls of a town; the convalescents being divided into classes according to their degree of convalescence. Those who were convalescent, whether from wounds or disease, were weekly removed from the convalescent wards of the different hospitals, to the convalescent hospital; and no man was sent from the convalescent hospital, till he was judged to be fit for all the duties of a soldier. From the convalescent hospital when fully recovered, a man was sent to the depôt, which was under the charge of a military officer, the commandant; and here, the soldier did some duty, and remained until he was discharged, and sent to join his regiment.

The divisions of the army composed of from eight to fifteen or sixteen regiments, under the command of a lieutenant-general, were each of them under the medical superintendence of an inspectorial officer, to whom the surgeons reported, and who regulated all the medical concerns of the division. It was his duty to see that, however short a time a battalion, or a corps, rested in one place, a regimental hospital was established; indeed, as they carried with them medicines, bedding, stores, and all the materials of an hospital, a regiment might be said to have its hospital constantly es-

tablished even on the march. It was frequently established in the face of an enemy, and nearly within the reach of his guns. When a regiment halted, after getting the men under cover in some building, and constructing chimnies, the first object was to make bedsteads, getting at the same time additional mattresses of straw, rushes, &c. It was really surprising to see with what rapidity this was done; so much were regiments in the habit of it, that latterly, I found the hospitals complete in every thing, and the men most comfortably lodged in a few days after a regiment had halted. In short, by making every corps constantly keep up an establishment for itself, we could prevent the general hospitals being crowded; much severe and acute disease was treated in its early and only curable stage, and no slight wounds or ailments were ever sent off from the regiments; by which means the effective force of the army was kept up, or perhaps increased by several thousand men, and this was effected by the joint exertions of the medical officers who served in the Peninsula; the result of medical science, and their experience of soldiers, their habits, and their aptitude to particular diseases. There was in the Peninsular army throughout the whole medical department, a spirit of energy and devoted zeal for the service, which pervaded the whole as a body, and which is really above all praise.

I must not omit to mention the confidence with which I was honoured, and the uniform support which I received from our illustrious commander

the Duke of Wellington, who confided to me the uncontrouled direction of the department, and of every thing that related to the sick and hospitals.

But, as perhaps a chief means, it would be unpardonable in me not to notice in this place the encouragement which was given to the medical department of the Peninsular army by the Duke of Wellington ; by cherishing their exertions, and, above all, gratifying them by that public notice and applause which heretofore had been confined to the military department of the army ; a notice and applause which brings them on the future pages of the history of their country. Much, very much have I been beholden to the officers of the medical department of the Peninsular army ; as I derive from them all the information which I now submit to the Society ; I received from them on service that support and assistance, by which alone I was enabled to conduct the service, and bring it to a successful termination.

The services of medical officers are of a less brilliant nature than those of the military ; but in points of utility, talent, and zeal, I believe it was acknowledged, that the medical was not inferior to any department in the army under the Duke of Wellington, contributing most largely to a successful issue of the contest in which we were engaged.

GENERAL ABSTRACT of the Admissions, Discharges, and Deaths in the General and Regimental Hospitals in the PENINSULA, between the 21st of December, 1811, and the 20th of June, 1814.

	Remained.	Admitted.	Total treated.	Discharged.	Of which were transferred.	Died.	Remaining.
Remained in General Hospitals the 20th December, 1811.....	4260						
Admitted between the 21st of December, 1811, and the 20th of December, 1812.....		95075		85003	23652	6931	
Admitted between the 21st of December, 1812, and the 20th of December, 1813.....		46715		43189	13964	5267	
Admitted between the 21st of December, 1813, and the 20th of June, 1814.....		22013		22926	4855	2474	
Remaining in General Hospitals.....							2263
General Hospitals	4260	163803	168063	151128	42471	14672	2263
Regimental Hospitals.....	1978	176067	178045	173544	52571	3841	660
Total	6238	339870	346108	324672	95042	18513	2923

GENERAL ABSTRACT

OF THE

Admissions, Discharges, and Deaths in the Regimental Hospitals in the PENINSULA, from the 21st of December, 1811, to the 20th of June, 1814.

Diseases admitted.	Admitted between the 21st of December, 1811, and the 20th of December, 1812.	Admitted between the 21st of December, 1812, and the 20th of December, 1813.	Admitted between the 21st of December, 1813, and the 20th of June, 1814.	Total.
Remained, December 20, 1811.....				1978
Febris Continua Simp.	16293	18294	5007	40224
Intermittens.....	13759	8203	952	22914
Remittens.....	1826	1699	436	3961
Typhus.....	331	1309	155	1795
Pneumonia.....	1604	1481	942	4027
Hepatitis.....		215	75	290
Rheumatismus.....	2123	2082	728	4933
Ophthalmia.....	873	745	257	1875
Catarrhus.....		914	638	1552
Dysentery.....	3241	3420	865	7526
Diarrhœa.....	6492	6982	2203	15677
Phthisis Pulmonalis...		218	53	271
Syphilis.....	1836	2430	646	4912
Vulnus.....	6214	10108	4564	20886
Ulcera.....	4593	5136	2438	12167
Morbi Chronici.....	120	271	151	542
Varii.....	18688	7879	3878	30445
Punit.....	478	1137	455	2070
Total admitted.....	79101	72523	24443	176067
Total treated... ..				178045

Diseases discharged.	Admitted between the 21st of December, 1811, and the 20th of December, 1812.	Admitted between the 21st of December, 1812, and the 20th of December, 1813.	Admitted between the 21st of December, 1813, and the 20th of June, 1814.	Total.
Febris Continua Simp.	16067	17595	5155	38817
Intermittens.....	13296	8361	1023	22680
Remittens.....	1802	1641	462	3905
Typhus.....	261	990	95	1346
Pneumonia.....	1566	1398	945	3909
Hepatitis.....		194	76	270
Rheumatismus.....	2067	2051	750	4868
Ophthalmia.....	834	764	280	1878
Catarrhus.....		932	682	1614
Dysentery.....	2931	3205	949	7085
Diarrhœa.....	6300	6897	2452	15649
Phthisis Pulmonalis...		166	74	240
Syphilis.....	1669	2518	643	4830
Vulnus.....	6032	8462	5437	19931
Ulcers.....	4329	5083	2489	11901
Morbi Chronici.....	93	330	125	548
Varii.....	20254	7468	4251	31973
Punit.....	424	1199	477	2100
Total Discharged.....	77925	69254	26365	173544
Of which were transferred to Ge- neral Hospitals.....	28370	16049	8152	52571
Died.....	776	2371	694	3841
Remaining.....				660
Diseases of Deceased.				
Febris Continua Simp.	390	942	172	1504
Typhus.....	62	416	73	551
Remittens.....	15	48	3	66
Intermittens.....	16	42	1	59
Hectica.....		1		1
Cynanche.....		2		2
Pneumonia.....	17	68	2	87
Peripneumonia.....		1		1
Hæmoptysis.....		1	1	2
Ophthalmia.....				
Hæmatemesis.....		1		1
Peritonitis.....		1	1	2

Diseases of Deceased	Admitted between the 21st of December, 1811, and the 20th of December, 1812.	Admitted between the 21st of December, 1812, and the 20th of December, 1813.	Admitted between the 21st of December, 1813, and the 20th of June, 1814.	Total.
Gastritis		1	4	5
Hepatitis	4	16	3	23
Rheumatismus.....	1	6		7
Enteritis	1	24	4	29
Phrenitis.....		1		1
Erysipelas		1		1
Hydrocephalus.....		1	2	3
Phthisis Pulmonalis...	10	68	12	90
Carditis	1	4	1	6
Empyema.....		1		1
Colica		1		1
Hæmorrhagia.....				
Dysentery	67	278	86	431
Diarrhœa.....	5	67	14	86
Hydrops		12	6	18
Asthma		3	2	5
Gangræna.....		6	1	7
Sphacelus.....		1		1
Abscessus.....		1	1	2
Paralysis		1	1	2
Syphilis	3	3		6
Icterus.....		2		2
Tetanus		3	6	9
Apoplexia	9	15	7	31
Hydrothorax		3		3
Epilepsia		5		5
Vulnera	92	231	183	506
Ulcera		6	2	8
Fractura		4	9	13
Comata		1		1
Mania		1		1
Cholera	2			2
Mortificatio			2	2
Anthrax			1	1
Convulsio.....			1	1
Synochus.....			2	2
Catarrhus.....			2	2
Morbi Chronici	2	11	11	24
Nostalgia.....		1		1
Variola.....		1		1
Varii.....	43	35	26	104
Unknown:	36	33	2	71

In 1812, it appears, that in all the hospitals general and regimental, the total treated, excluding French prisoners, but including extra patients,	
was	176180
Of these discharged cured	119798
Transferred	39757
Died	7193

The Deaths were as follow ;

Dysenteria	2340	or 1 in $75\frac{1}{4}$
Fabris Continua	2020	$87\frac{1}{4}$
Typhus	999	$176\frac{2}{3}$
Vulnera	905	$194\frac{2}{3}$
Unknown—principally Extra patients	182	968
Febris intermittens	148	$1190\frac{1}{2}$
Morbid Chronici	102	$1727\frac{1}{3}$
Varii	97	$1816\frac{1}{3}$
Diarrhœa	79	$2230\frac{1}{2}$
Febris Remittens	67	$2629\frac{1}{2}$
Pneumonia	58	$3037\frac{1}{2}$
Phthisis Pulmonalis	49	$3595\frac{1}{2}$
Gangræna	35	$5033\frac{2}{3}$
Hydrops	26	6776
Syphilis	19	$9272\frac{2}{3}$
Apoplexia	19	$9272\frac{2}{3}$
Carditis	6	$29363\frac{1}{3}$
Ulcus	5	35236
Hydrothorax	5	35236
Hepatitis	5	35236

Enteritis	-	-	-	-	-	-	4 or 1 in	44045
Cholera	-	-	-	-	-	-	4	44045
Epilepsia	-	-	-	-	-	-	3	58726 $\frac{2}{3}$
Tetanus	-	-	-	-	-	-	4	44045
Variola	-	-	-	-	-	-	3	58726 $\frac{2}{3}$
Rheumatismus	-	-	-	-	-	-	2	68090
Cynanche	-	-	-	-	-	-	1	176180
Hæmoptysis	-	-	-	-	-	-	1	176180
Peritonitis	-	-	-	-	-	-	1	176180
Erysipelas	-	-	-	-	-	-	1	176180
Icterus	-	-	-	-	-	-	1	176180
Cancer	-	-	-	-	-	-	1	176180
Hernia	-	-	-	-	-	-	1	176180

Extra patients included in the above.

Remained	Admitted	Total treated	Discharged	Transferred	Died.
86	1991	2077	1653	33	182

Prisoners of war not included.

Remained	Admitted	Total treated	Discharged	Transferred	Died.
4234	4234	2866	507	514	

In 1813, it appears that in all the hospitals, general and regimental, the total treated, excluding French prisoners, but including extra patients, was	123019
Of these discharged cured	79090
Transferred	29090
Died	6866

The deaths were as follow :

Dysentery	1629 or 1 in	$75\frac{1}{2}$
Febris Continua	1598	$76\frac{3}{4}$
Vulnera	1095	$112\frac{1}{3}$
Typhus	971	$126\frac{2}{3}$
Gangræna	446	$275\frac{3}{4}$
Phthisis Pulmonalis	158	$778\frac{1}{2}$
Febris Intermittens	139	885
Pneumonia	133	$939\frac{1}{6}$
Diarrhœa	106	$1160\frac{1}{2}$
Hydrops	72	$1708\frac{1}{2}$
Vari	71	$1732\frac{1}{2}$
Febris Remittens	65	$1892\frac{1}{2}$
Unknown	59	2085
Morbi Chronici	58	2121
Enteritis	32	$3844\frac{1}{3}$
Mortificatio	32	$3844\frac{1}{3}$
Hepatitis	23	$5348\frac{1}{3}$
Tetanus	23	$5348\frac{1}{3}$
Apoplexia	21	5858
Ulcera	20	$6152\frac{3}{4}$

Febris Hectica	15 or 1 in	8204 $\frac{3}{4}$
Hydrothorax	13	9463
Syphilis	11	11183 $\frac{1}{2}$
Rheumatismus	11	11183 $\frac{1}{2}$
Abscessus	8	15377 $\frac{1}{2}$
Epilepsia	6	20503 $\frac{1}{4}$
Fractura	6	20503 $\frac{1}{4}$
Asthma	5	24603 $\frac{3}{4}$
Sphacelus	5	24603 $\frac{3}{4}$
Paralysis	4	30754 $\frac{3}{4}$
Cynanche	3	41006 $\frac{1}{3}$
Icterus	3	41006 $\frac{1}{3}$
Hæmoptysis	2	61509 $\frac{1}{2}$
Gastritis	2	61509 $\frac{1}{2}$
Erysipelas	2	61509 $\frac{1}{2}$
Colica	2	61509 $\frac{1}{2}$
Hæmorrhagia	2	61509 $\frac{1}{2}$
Peripneumonia	1	123019
Peritonitis	1	123019
Phrenitis	1	123019
Hydrocephalus	1	123019
Empyema	1	123019
Atrophia	1	123019
Comata	1	123019
Mania	1	123019
Nostalgia	1	123019
Variola	1	123019
Anthrax	1	123019
Hæmatemesis	1	123019
Ophthalmia	1	123019

Extra patients included:

Remained	Admitted	Total treated	Discharged	Transferred	Died.
391	1105	1496	1073	99	116

Prisoners of war not included.

Remained	Admitted	Total treated	Discharged	Transferred	Died.
347	5651	5998	3420	923	772

In 1814, it appears, that in all the hospitals, general and regimental, the total treated, excluding prisoners of war, but including extra patients, was	53073
Of these discharged cured	34591
Transferred	12825
Died	2909

The Deaths were as follow :

Dysenteria	748	or 1 in $70\frac{3}{4}$
Vulnera	699	$75\frac{3}{4}$
Febris Continua	387	$137\frac{1}{2}$
Typhus	307	$172\frac{3}{4}$
Gangræna	122	435
Pneumonia	96	$552\frac{3}{4}$
Phthisis Pulmonalis	72	737
Fractura	64	829
Varii	35	$1516\frac{1}{3}$
Diarrhœa	34	1561
Tetanus	24	2311
Febris Hectica	23	$2307\frac{1}{2}$

Hydrops	21 or 1 in	2527 $\frac{1}{3}$
Febris Remittens	18	2948 $\frac{1}{2}$
Apoplexia	16	3317
Hydrothorax	15	3538
Morbi Chronici	15	3538
Hepatitis	8	6634 $\frac{1}{8}$
Abscessus	8	6634 $\frac{1}{8}$
Enteritis	7	7581 $\frac{3}{4}$
Mortificatio	7	7581 $\frac{3}{4}$
Ulcera	6	8845 $\frac{1}{2}$
Syphilis	5	10616 $\frac{1}{2}$
Febris Intermittens	4	13243 $\frac{1}{4}$
Gastritis	4	13243 $\frac{1}{4}$
Asthma	4	13243 $\frac{1}{4}$
Paralysis	4	13243 $\frac{1}{4}$
Hydrocephalus	3	17691
Synochus	3	17691
Hæmoptysis	2	26536 $\frac{1}{2}$
Peritonitis	2	26536 $\frac{1}{2}$
Rheumatismus	2	26536 $\frac{1}{2}$
Phrenitis	2	26536 $\frac{1}{2}$
Hæmorrhagia	2	26536 $\frac{1}{2}$
Icterus	2	26536 $\frac{1}{2}$
Epilepsia	2	26536 $\frac{1}{2}$
Scrophula	2	26536 $\frac{1}{2}$
Catarrhus	2	26536 $\frac{1}{2}$
Variola	2	26536 $\frac{1}{2}$
Cynanche	1	53073
Erysipelas	1	53073
Carditis	1	53073
Anthrax	1	53073

Convulsio	-	-	-	-	-	-	-	1 or 1 in	53073
Splenitis	-	-	-	-	-	-	-	1	53073
Extra Patients, Diseases un-									
known	-	-	-	-	-	-	-	124	428

Extra patients included in the above:

Remained	Admitted	Total treated	Discharged	Transferred	Died.
208	2334	2542	2210		149

Prisoners of war not included.

Remained	Admitted	Total treated	Discharged	Transferred	Died.
883	1436	2319	1703	182	259

RETURN

OF THE

Number of Deaths which have occurred amongst the Convicts in Portsmouth and Langston Harbours, from January the 1st, 1805, to June the 16th 1815.

Years.	Number of Deaths in Portsmouth Harbour.	Number of Deaths in Langston Harbour.	REMARKS.
1805	2	4	The average Number victualled in Portsmouth Harbour was 420, and in Langston Harbour 320, daily.
1806	15	3	
1807	5	6	
1808	7	6	
1809	4	3	
1810	4	1	
1811	17	2	
1812	5	2	
1813	8	5	
1814	10	8	
1815	4	4	

J. CARR EMERSON,

Surgeon.

251139

1/15

THE FOLLOWING IS A SUMMARY OF THE RESULTS OF THE
ANALYSIS OF THE SAMPLES OF THE
WATER TAKEN AT THE
STATION ON 1/15/1915

No.	Name	1/15/1915	
		Temp.	Specific Gravity
1	Water	50.0	1.000
2	Water	50.0	1.000
3	Water	50.0	1.000
4	Water	50.0	1.000
5	Water	50.0	1.000
6	Water	50.0	1.000
7	Water	50.0	1.000
8	Water	50.0	1.000
9	Water	50.0	1.000
10	Water	50.0	1.000

ANALYSED BY
J. H. HARRIS

